The IRON AGE
June 6, 1957
The National Metalworking Weekly

Joel Barlow:

A Sound Approach To Depreciation Policies P. 65

How Purchasing Agents View Future Business P. 51

Oxides No Barrier To New Welding Process P. 97

Digest of the Week P. 2-3

THE OTHER TURN

HERE COMES THE ARMY TO TACKLE THAT LITTLE ROOF PATCH JOB.
WITH ALL THEM BRICKLAYERS THEY'LL ONLY HAVE TO LAY ONE BRICK APIECE
BEFORE THEM GUYS GET AT IT --- THE OTHER END'LL PROBABLY FALL IN!
THANKS TO THE OPEN HEARTH CREW BUCKEYE STEEL CASTINGS CO COLUMBUS, OHIO
KUEKES

The Visiting Team

WHY NOT DESCRIBE YOUR OPEN-HEARTH CARTOON IDEA AND SEND IT ALONG TO US?

The benefits steelmakers obtain from our refractories are in part a result of Basic's on-the-job servicing. One of the rewards of this close relationship has been the opportunity to observe and appreciate the lighter side of these usually serious craftsmen.

BASIC INCORPORATED 845 HANNA BUILDING • CLEVELAND 15, OHIO

XXI

This is the twenty-first of a series of advertisements dealing with basic facts about alloy steels. Though much of the information is elementary, we believe it will be of interest to many in this field, including men of broad experience who may find it useful to review fundamentals from time to time.

How Alloy Steels Respond to Induction Hardening

In the now-popular induction-hardening process, steel is first heated above the transformation range by means of electrical induction, then quenched as required. Special equipment is needed, and heat is developed as follows:

High-frequency alternating current passes through a coil or inductor, with the result that a magnetic field is created in the coil. When the piece to be treated is placed in this field, it is heated rapidly by induced energy. With the various types of induction-heating equipment, the process is capable of surface- or case-hardening to various controlled depths; however, through-hardening can be obtained with certain alloy steels. Ferrous metals that respond well to induction hardening include numerous grades of both alloy and carbon steels, as well as hardenable stainless steel and plain or alloyed cast iron.

As a rule, when alloy steels containing no carbide-forming elements are heated by induction, the usual hardening temperatures can be used. But with alloy steels that do contain such carbide-forming elements as chromium, molybdenum, and vanadium, the hardening temperature must be increased if shallow cases are required and the normal effect of the alloying elements is desired.

Hardness obtained by the induction process is a function of the carbon content and prior structure, just as it is when conventional heating methods are used. Nevertheless, higher surface-hardness values for a given carbon content have often been noted in parts subjected to surface induction-hardening. The extra hardness may be as much as five Rockwell C points for steels of 0.30 pct carbon.

As pointed out previously, the induction method requires special equipment. However, it possesses several marked advantages, including speed of heating and cleanliness of operation. Pieces heated by induction are usually subject to a minimum of scaling and distortion. Moreover, induction-hardening equipment is very compact and therefore conserves floor space.

If you would care to know more about the induction hardening of alloy steels, you are invited to communicate with our technical staff. Bethlehem metallurgists have made a thorough study of the subject, including the many details of quenching and tempering. Call them if they can help you in any way. And remember, too, when considering sources of alloy steels, that Bethlehem makes the full range of AISI standard grades, as well as special-analysis steels and all carbon grades.

If you would like reprints of this series of advertisements from No. 1 through No. XX, please write to us, addressing your request to Publications Department, Bethlehem Steel Company, Bethlehem, Pa. The first 20 subjects in the series are now available in a handy 36-page booklet, and we shall be glad to send you a free copy.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

THE IRON AGE
Chestnut and 56th Sts.
Philadelphia 39, Pa.
SHerwood 8-2000

GEORGE T. HOOK, Publisher

EDITORIAL STAFF

TOM C. CAMPBELL, Editor-in-Chief

GEORGE F. SULLIVAN, Editor

Managing Editor — E. C. Beaudet
News-Markets Editor — J. B. Delaney
Asst. News Mkts. Ed. — R. D. Raddant
Technical Editor — J. J. Obrzut
Engineering Editor — W. G. Patton
Machinery Editor — E. J. Egan, Jr.
Metallurgical Editor — P. M. Unterweiser
Materials Editor — Wm. Czygen
Art Director — J. A. Degen

Associate Editors: F. J. Starin, P. J. Cathey, R. Schulin, F. P. Plimpton. Assistant Editor: J. A. Moore. Regional Editors: K. W. Bennett, Chicago; T. M. Rohan, Cleveland; T. L. Carry, Detroit; G. G. Carr, New York; R. R. Kay, Los Angeles; G. J. McManus, Pittsburgh; G. H. Baker, R. M. Stroupe, N. R. Regeimbal, Washington. Correspondents: F. L. Allen, Birmingham; N. Levenson, Boston; R. M. Edmonds, St. Louis; J. Miller, San Francisco; R. Kazarian, Buffalo; D. A. Coughlin, Seattle; F. Sanderson, Toronto; F. H. Harley, London, England; Chilton Editorial Board: Paul Wooton, Washington representative.

WASHINGTON EDITORIAL OFFICE

Washington 4 — National Press Bldg.

BUSINESS STAFF

Production Manager — Warren Owens
Director of Research — Oliver Johnson
Circulation Mgr. — W. M. Coffey
Promotion Manager — Richard Gibson
Asst. Research Dir. — Wm. Laimbeer

REGIONAL BUSINESS MANAGERS

Chicago 1 — T. H. Barry, W. R. Pankow
360 N. Michigan Ave. — Randolph 6-2166

Cleveland 15 — Robert W. Watts
930 B. F. Keith Bldg. — Superior 1-2860

Columbus 15, Ohio — Harry G. Mumm
LeVegue-Lincoln Tower — Capital 1-3764

Detroit 2 — W. J. Mulder
103 Pallister Ave. — Trinity 1-3120

Los Angeles 28 — R. Raymond Kay
2420 Cheremoya Ave. — Holly'd 3-1882

New York 17 — C. H. Ober, C. T. Post
100 E. 42nd St. — Oxford 7-3400

Philadelphia, B. L. Herman, J. A. Crites
56th & Chestnut Sts. — Sherwood 8-2000

Pittsburgh 22 — T. M. Fallon
1502 Park Bldg. — Atlantic 1-1832

San Francisco 3 — Don May
1355 Market St. — Underhill 1-9737

Tulsa — H. E. Mott, J. W. Sangston
621 Petroleum Bldg. — Luther 4-1769

W. Hartford 7 — Paul Bachman
62 LaSalle Rd. — Adams 2-0486

England — Harry Becker
National Provincial Bank Chambers, 15 Gratton St., Altrincham, Cheshire.

One of the Publications Owned and Published by Chilton Company, Chestnut & 56th Sts., Philadelphia 39, Pa.

OFFICERS AND DIRECTORS

Joseph S. Hildreth, Ch. of the Board
G. C. Buzby, President

Vice-Presidents: P. M. Fahrendorf, Harry V. Duffy; Treasurer, William H. Vallar; Secretary, John Blair Moffett; Directors: George T. Hook, Maurice E. Cox, Frank P. Tighe, L. V. Rowlands, Robert E. McKenna, Irving E. Hand, Everit B. Terhune, Jr., R. W. Case, Jr., John C. Hildreth, Jr.

Indexed in the Industrial Arts Index and the Engineering Index.

BPA NBP

Copyrigth 1957 by Chilton Company

THE IRON AGE, published every Thursday by CHILTON COMPANY, Chestnut & 56th Sts., Philadelphia 39, Pa. Entered as second class matter, Nov. 8, 1912, at the Post Office at Philadelphia under the act of March 3, 1879. Price to the metal-working industries only or to people actively engaged therein, $2 for 1 year, $3 for 2 years in the United States, its territories and Canada. All others $15 for 1 year; other Western Hemisphere countries, $15; other Foreign Countries, $25 per year. Single copies 50¢. Annual Review Issue, $2.00. Cable: "Ironage," N. Y.

The IRON AGE

June 6, 1957—Vol. 179, No. 23

Digest of the Week in

★Starred items are digested at right

EDITORIAL

Depreciation Hurdles Require a Lot of Homework 7

NEWS OF INDUSTRY

★**Special Report:** Purchasing Agents Think Outlook Is Good 51
★Vacuum Furnace Up for Bid 53
★Alloy Structurals Gain Popularity 54
★Yankee Brass Mills Look Ahead 55
★Mine Equipment Sales Revive 56
New Corning Ceramic Replaces Metal 58
Iron Age Salutes 61
★Let's Make Sense in Our Depreciation Policies 65
Men in Metalworking 87
Metalworking Briefs 176

NEWS ANALYSIS

Newsfront 49
★**Report to Management** 63
Automotive 74
★Washington 79
★West Coast 81
★Machine Tool 83

FEATURE ARTICLES

★Resistance Welds Bypass Oxides 97
★Good Design Cuts Casting Costs 100
★Aluminum Chromizing: Strength Plus Corrosion Resistance 102
★New Method Speeds Salt Analysis 105
★A New Substitute for Tinplate 106

MARKETS & PRICES

★Iron Age Summary—Steel Output Will Hit Low in July 147
Steel Products Markets 148
Comparison of Prices 149
Iron and Steel Scrap Markets 150
Nonferrous Markets 154
Steel Prices 158

REGULAR DEPARTMENTS

Calendar 13
Materials Roundup 110
Free Literature 116
Technical Briefs 124
New Equipment 134

INDEX TO ADVERTISERS 176

NEWS DEVELOPMENTS

Purchasing Agents Think Outlook Is Good

Annual meeting of purchasing agents turns up sizable majority of optimists. But inventory cutbacks are worrisome problem. Buyers urged to guard against overdoing inventory reductions. **P. 51**

Alloy Structurals Off To a Fresh Start

High strength structurals are getting a big boost from engineers

and designers. Although they still constitute a minute share of the structural market, large gains are being made. New bridge programs are a big factor. **P. 54**

Electrode Vacuum Melting Licensed for Sale

Titanium Metals and Allegheny Ludlum release consumable electrode vacuum remelting furnace for licensed sale. First uses of the process will probably be in the field of specialty metals. **P. 53**

Why Management Worries About Wages

New Bureau of Labor Statistics

Metalworking

DEPRECIATION SPOKESMAN: Joel Barlow, one of the best qualified experts on depreciation, states the case for faster write-offs on machine life. But will industry act quickly and wisely enough to avoid further federal restrictions? **P. 65**

report shows how far wage increases outstrip climb in productivity. Rate of pay increase gains are most rapid in past year. **P. 63**

Where Numerical Controls Pay Off in Machining

Often numerical controls on machining operations are given more credit than they deserve, expert says. However for machining complex contours and in reducing setup time they offer advantages. **P. 83**

FEATURE ARTICLES

Resistance Welds Bypass The Oxide Barrier

A new welding process that puts high frequency power to work with excellent results is reported by a Florida tube maker. The current travels into metal by capacitive action, requires very little special preparation. **P. 97**

Good Design Cuts Casting Costs

Good casting designs can save costs of rejects, excessive machining, production delays, and service failure. Better designs can be had by keeping section thickness uniform, providing ample fillets, avoiding small cores. **P. 100**

Aluminum Chromizing Offers Strength and Protection

Aluminum chromizing may be the answer where conventional chromizing falls short of strength requirements. It doesn't decarburize steel. And it provides a corrosion-resistant coating that is readily welded. **P. 102**

New Method Speeds Pickling Salt Analysis

The Navy is now specifying that sodium chloride be added to sulfuric acid pickling baths for certain type steels. It requires that salt concentrates be held to a specified level. **P. 105**

Surface Treatment Substitutes For Tinplate

A unique chemical treatment developed by Heintz Manufacturing Co. produces an inorganic coating made up chiefly of chromium compounds. It equals tinplate in economy and performance. **P. 106**

MARKETS & PRICES

Yankee Brass Mills Report Two Big "Ifs"

Sales managers in the heart of brass mill country look for firmer market. Some say it will be auto buying for 1958 models that will firm the market. Others watch job shop buying. **P. 55**

Mine Equipment Sales Are Reviving

Mine operators spent over 20 pct more for equipment last year than in 1954. This year should show another increase. Behind the increase is a comeback by the soft coal industry. **P. 56**

Seattle Planemakers Will Stay Busy

Discount any word that aircraft production in the Northwest will be curtailed. Boeing's output of B-52s, commercial jetliners and missiles should keep firm busy. **P. 81**

Military Budget Cut Is a Certainty

A growing list of congressmen is demanding that the Armed Forces give up some of their frills and learn to get along on fewer dollars. Rep. Mahon says that a 7 pct cut could be made. **P. 79**

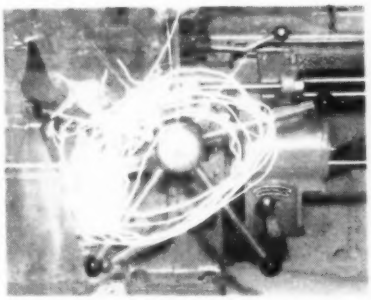
Steel Output Will Hit Low Point in July

It looks as though steel output in July will drop below 80 pct of capacity. That would be the first time since December 1954. **P. 147**

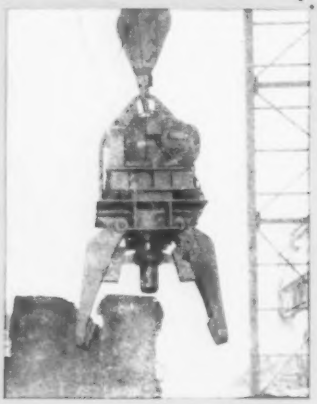
NEXT WEEK

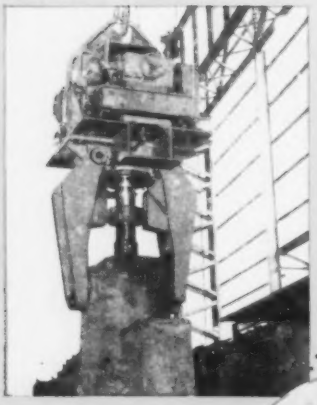
Ergonomics: A Human Guide To Machine Design

Machine design plays a big role in operator morale and output. Next week's feature tells how ergonomic studies are used to design tools to suit human dimensions — an approach rarely considered.



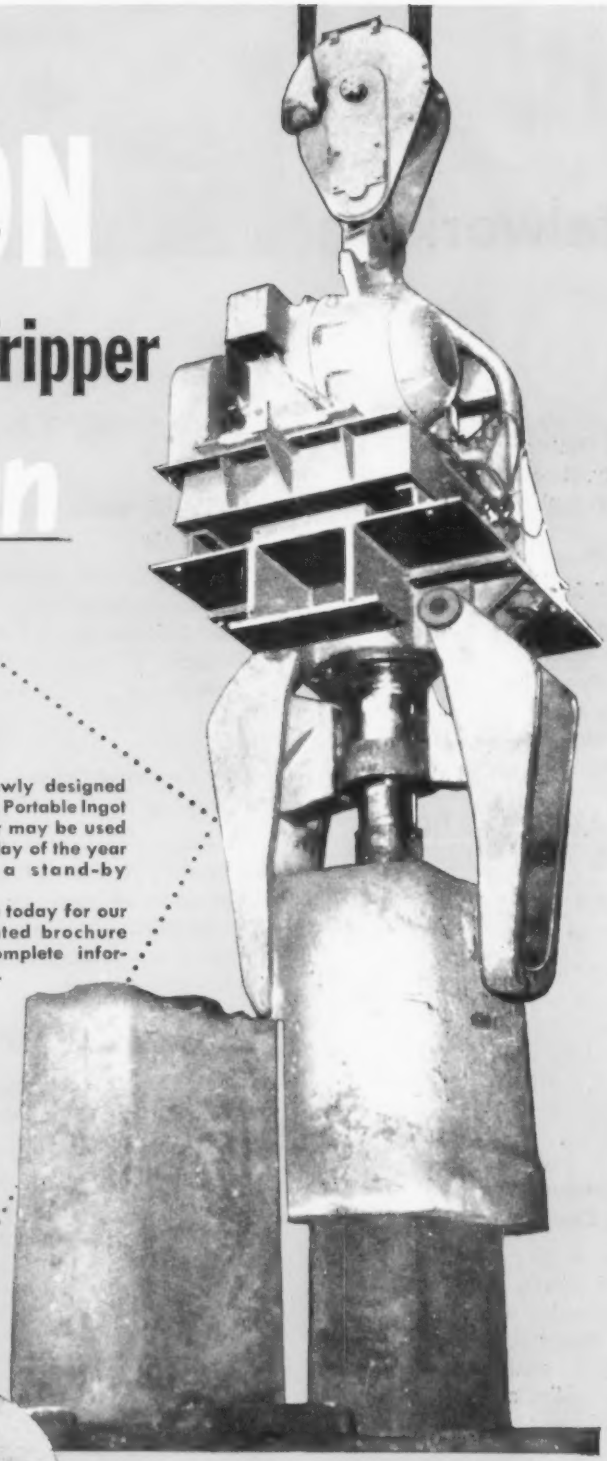
450 TON
portable ingot stripper
in action





Our newly designed 450 ton Portable Ingot Stripper may be used every day of the year or on a stand-by basis.

Write today for our illustrated brochure and complete information.



"Electric and Open Hearth Steel Castings from 1 lb. to 100 tons"

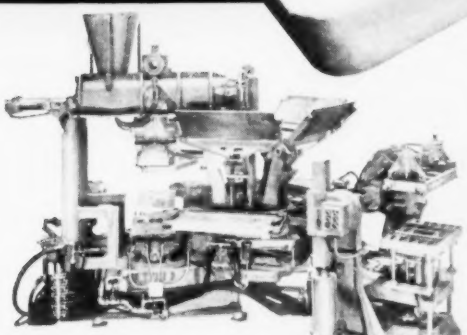
Pittsburgh
ENGINEERING & MACHINE CO.
Division of Pittsburgh Steel Foundry Corporation

P. O. BOX 986,
PITTSBURGH 30, PENNSYLVANIA

PLANT AT
GLASSPORT, PENNSYLVANIA

Automation in the foundry

. . . Turns a profit taker into a profit maker



OSBORN ROTO-CORE® AUTOMATIC
one of Osborn's versatile foundry machines, combines the functions of three units—core blower, five-station turntable, and rock-over draw machine—into one fully automatic core blowing machine.

Benefit from the experience of hundreds of manufacturers who have found automation as practical an investment for the foundry as it is for any other production phase.

Automated foundry methods eliminate human error . . . guesswork . . . with increased product quality the result. Automation steps up output . . . pulls down costs.

An Osborn foundry automation specialist can help you turn a profit *taker* into a profit *maker*. He's backed by an organization which, for more than 50 years, has pioneered important advances in foundry production methods . . . has always delivered the highest standards of durability and dependability in foundry production machinery.

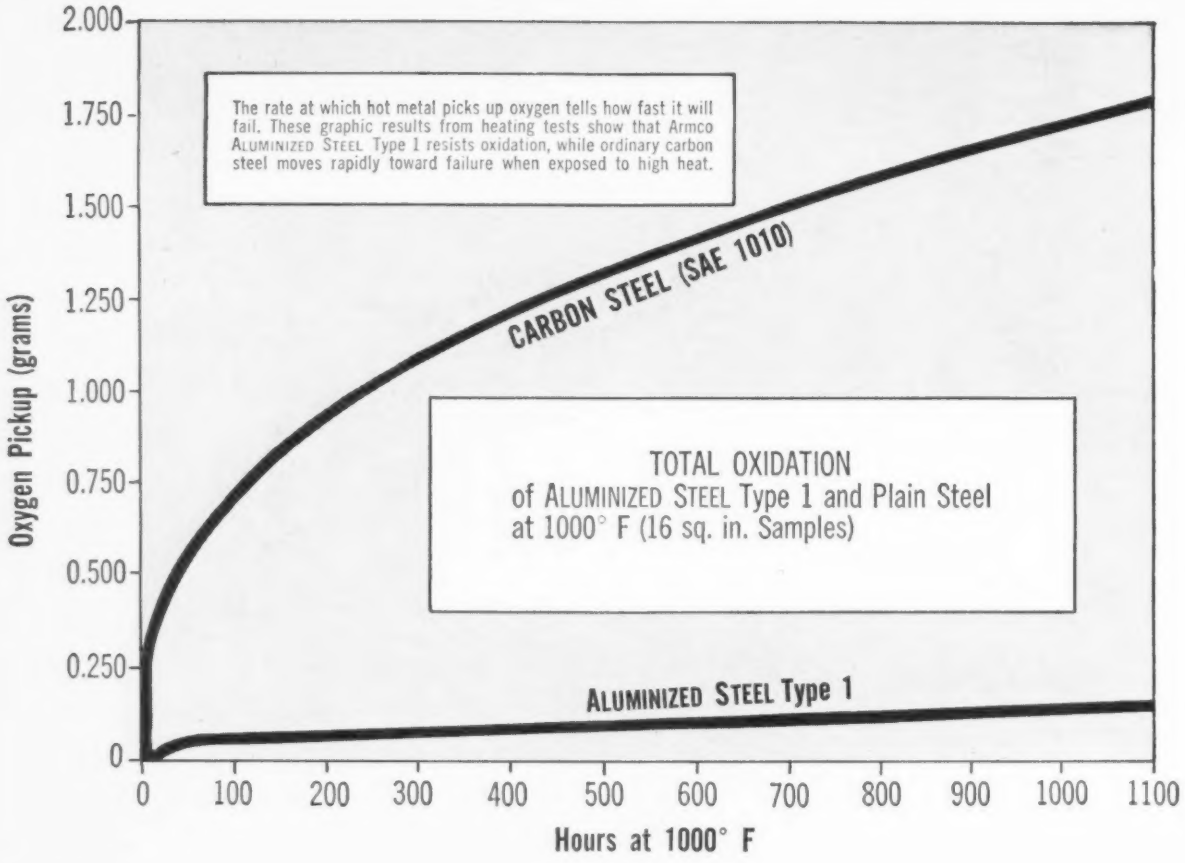
For information on Osborn's wide range of automatic machines for making molds and cores, write *The Osborn Manufacturing Company, Dept. AA-18, Cleveland 14, Ohio.*

FOUNDRY EQUIPMENT MANUFACTURERS ASSOCIATION INC. MEMBER FEMA

Leader in automation for the foundry

OSBORN®

Molding machines • Shell machines
Core blowers • Industrial brushes
Brushing machines



Test Shows How Well Armco ALUMINIZED STEEL Resists Heat

Armco ALUMINIZED STEEL® Type 1 (steel hot-dip coated with aluminum) stands up to heat because it withstands destructive scaling. This test shows how well.

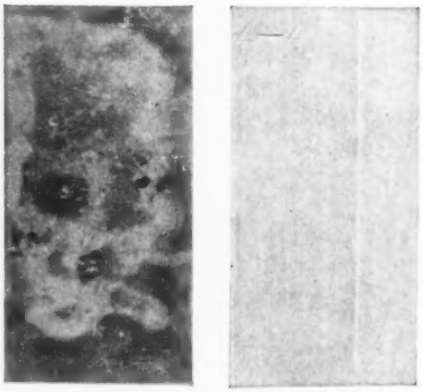
Above 900 F, an iron-aluminum alloy forms on the surface of Armco ALUMINIZED STEEL Type 1. It becomes a tightly-adherent refractory material that protects the base metal. Ordinary carbon steel lacks this protection. The powdery and flaky oxides which form on the surface of carbon steel fall away, exposing it to further attack.

Economical Double Protection

Armco ALUMINIZED STEEL Type 1 not only resists heat, it fights corrosion at the same time. In fact, this special 2-in-1 metal beats back deadly combinations of heat and corrosion better than any metal in its price class.

If parts of your products are exposed to a combination of heat and corrosion, it may pay you to get all the facts about Armco ALUMINIZED STEEL Type 1. It could be a low-cost solution for your problems.

Complete information on this special coated steel is readily available. Just call your nearby Armco Sales Office or write us at the address below.



After 1100 hours at 1000 F. **Right**—Armco ALUMINIZED STEEL Type 1; **Left**—SAE 1010 Steel.

ARMCO STEEL CORPORATION

1537 CURTIS STREET, MIDDLETOWN, OHIO

SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

Depreciation Hurdles Require a Lot of Homework

We will never get a realistic and valuable depreciation law by wishful thinking. Nor will we get it by a Coue-like repetition of statements such as "What we need is more allowance" or "the Treasury Department ought to do something."

Industry needs a better depreciation law; or at least a greatly revised edition of present outmoded rules and regulations. But it is not as easy as it seems.

Most responsible Treasury people know well what difficulties face industry today as it tries to raise money for new plant and equipment. These government people actually sympathize with industrialists who are having nightmares over such fiscal problems.

But the depreciation law is on the books. It states that industry may in a certain number of years get back its original investment. It says nothing about the value of the dollar or the causes of inflation. Nor does the law make it possible to use some of the vague suggestions coming from businessmen.

The first thing that must be done is some low-down and hard-headed thinking on the entire question. If management is to do this kind of brainwork, it must speak up and be counted. If it presents a "plan," that plan ought to have the bugs taken out of it before it gets publicity.

This is no time to use the question of greater depreciation as a pious and vague balloon for prosaic after-dinner speeches. No one in the government—of any stature—denies that business should get depreciation relief. These people know the economy cannot expand or become stronger unless a more equitable means of paying inflated replacement costs on equipment is provided for—and quickly.

What we need today is for the best brains in industry to figure out just what the Treasury Department should consider. How it will work? What will its shortcomings be? What chance will it have of surviving Congress?

If Lifo can be applied to depreciation as it is applied to inventories, let's have a crash study by responsible and expert businessmen — working with the Treasury Department. If that kind of cooperation gets started, all kinds of new and valuable ideas will emerge.

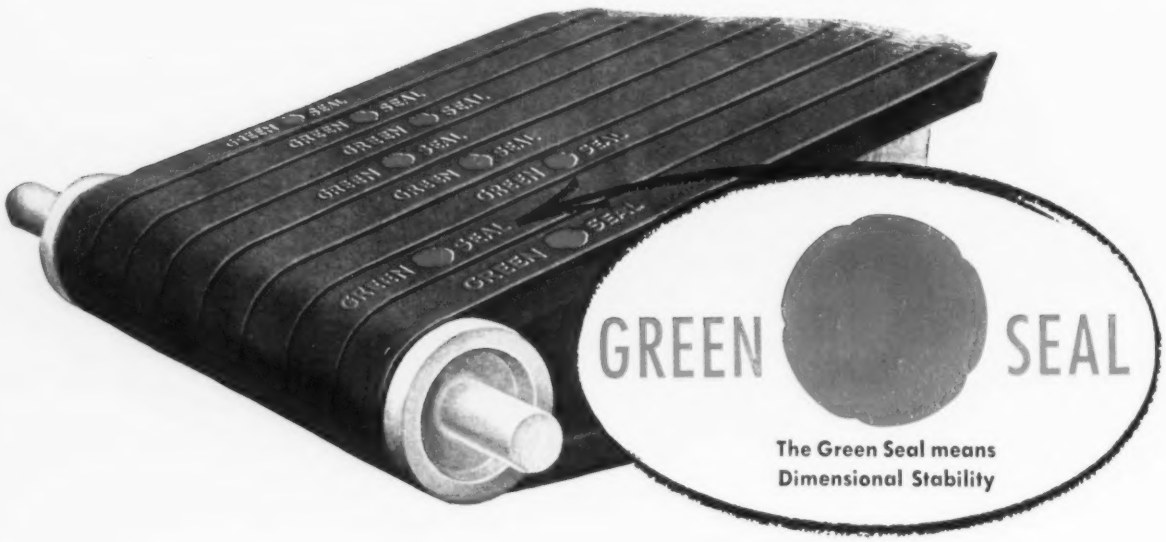
Above all we must approach this question with facts, estimates, honesty—and a willingness to admit gross emotional bias at times. The meataxe will not do. Let's get going!

Tom Campbell

Editor-in-Chief

Another Goodyear First:

V-Belts *with the* Green Seal



stay matched from factory to drive

The Green Seal signifies true dimensional stability. It means that now when you reach for a matched set of V-belts, you can be sure they're matched – no matter how long they've lain on the shelf. And that means longer life and a minimum of down time.

It used to be that only steel-cable V-belts by Goodyear were length stabilized. But now, through the miracle of Triple-Tempering, they've been joined by all the other Goodyear Industrial V-belts.

Triple-Tempering is the exclusive process wherein synthetic cord is carefully brought to the peak of strength and stability by controlled tempering with Tension, Temperature and Time. And this gives you not only *length* stability in storage, but greater shock- and stretch-resistance on the drive.

In addition to 3-T load-carrying members, the Green Seal also brings you "balanced construction." This means each component of the belt is specifically designed to its job to give you cleaner, smoother, longer running which adds up to maximum, trouble-free horsepower hours at minimum cost.

The next time you need V-belts, be sure they're wearing the Green Seal–the mark of a V-belt made with the technical know-how of the world's largest rubber company. They're readily available at your Goodyear Distributor. Or write for details to Goodyear, Industrial Products Division, Lincoln 2, Nebraska, or Akron 16, Ohio.

DIMENSIONALLY STABLE V-BELTS by

GOODYEAR

THE GREATEST NAME IN RUBBER

Green Seal—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

Washington Know-How

Sir—We are very much interested in the article written by Struve Hensel, No. 9 in your Modern Management series entitled "How to do Business with Washington."

We would like very much to send additional reprints of this to our various marketing divisions. Would you please send twelve copies to the attention of the writer? —G. W. Malme, Adv. Mgr., Western Gear Corp., Lynwood, Calif.

▪ Copies are on the way.—Ed.

Auto Parts Makers

Sir—I was somewhat embarrassed to read in your May 16 article "Auto Parts Makers Go After Diverse Markets," about Houdaille Hershey not being in Detroit at all. They are, of course, very busy making bumpers and some other items right here in Detroit.

The point I tried to make in the interview, using Houdaille as a good example, was that the parts companies not only are diversifying product-wise, but are also shifting physically and geographically. For example, Houdaille used to headquarter in Detroit; today they are in Buffalo.—F. Rising, Secretary, Automotive Parts Mfrs. Assoc., Detroit, Mich.

▪ Please accept our apologies to APMA and Houdaille Hershey.—Ed.

Industrial Design

Sir—The May 9 issue of THE IRON AGE carries an article concerning Domore Chairs and Raymond Loewy Associates, our designer.

I should like very much to have a half dozen copies of the magazine and whatever tearsheets of the article that you might be able to send along.—G. A. Bettcher, Vice Pres., Domore Chair Co., Inc., Elkhart, Indiana.

▪ Copies are on the way.—Ed.

Glow Discharge

Sir—We note with interest your recent feature article entitled "New Nitriding Process Uses Glow Discharge."

As a manufacturer of gages and precision instruments, we are definitely interested in such a process and were wondering whether or not you know of any company in the United States that is carrying on any experiments along this line.

Any information which you might be able to pass along to us will certainly be appreciated.—J. R. Geyer, Purchasing Agent, Sheffield Corp., Dayton, Ohio.

▪ Suggest you write Julius Klein, 110 South Dearborn St., Chicago. —Ed.

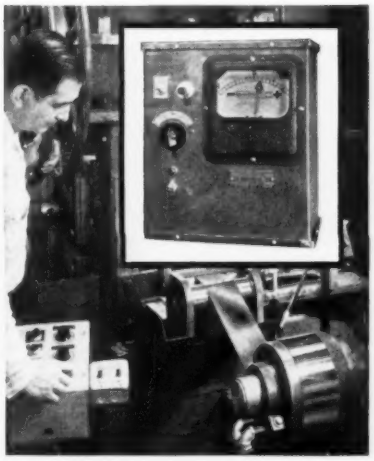
Rating Electrodes

Sir—We are interested in receiving upwards to 100 copies of Mr. O. T. Barnett's article "Rating System Simplifies Welding Electrode Selection" which was published in your Apr. 4 issue.—C. R. Beidleman, Specialist, Electrode Planning & Service, Welding Dept., General Electric Co., York, Pa.

"Some people object to being transferred, so. . . ."

Somers THIN STRIP

.000175" THIN



Now available in production quantities

Keeping pace with the advanced design of transistors and other electronic components, Somers Brass Company has installed a unique mill for the production of ultra-thin strip. Brass, copper and nickel are now being rolled down to .000175", up to 4" wide, in footages to satisfy mass production requirements.

You can rely on Somers, specialists for nearly 50 years, for the experience to solve your thin strip problems, whether in design or manufacturing.

Write for Confidential Data Blank and a complete analysis of your present or proposed application at no cost or obligation.

FOR EXACTING STANDARDS ONLY

Somers

Somers Brass Company, Inc.
102 BALDWIN AVE., WATERBURY, CONN.

NEW

MALE & FEMALE DIES

THE ACCURATE A. D. M.© STEEL RULE MALE and FEMALE DIE

FOR METAL STAMPING

- Steel and Similar Metals up to .140 in Thickness
- Aluminum and Similar Metals up to .202 in Thickness

COST

Only a fraction of the cost of conventional Male & Female Dies. The larger the die the greater the proportionate savings.

Come complete with line-up pins ready to attach to your die set.

DELIVERY FROM 2 TO 5 DAYS

BREAK YOUR DIE BOTTLE NECK
SOLVE YOUR DIE MAKER SHORTAGE

An Accurate ADM "Steel Rule" Male & Female Die Is Your Best Buy

ALL QUOTATIONS ANSWERED THE SAME DAY WE RECEIVE THEM

MINIMUM PRODUCTION ON STEEL AND SIMILAR METALS

THICKNESS	MINIMUM	MAXIMUM
1/32 STEEL	100,000	UNKNOWN
1/16 STEEL	100,000	UNKNOWN
3/32 STEEL	75,000	UNKNOWN
1/8 STEEL	50,000	UNKNOWN

MAXIMUM UNKNOWN AS DIES HAVE NEVER BEEN RUN TO DESTRUCTION

MINIMUM PRODUCTION ON ALUMINUM AND SIMILAR METALS

THICKNESS	MINIMUM	MAXIMUM
1/16 ALUMINUM	125,000	UNKNOWN
3/32 ALUMINUM	100,000	UNKNOWN
1/8 ALUMINUM	75,000	UNKNOWN
5/32 ALUMINUM	50,000	UNKNOWN
3/16 ALUMINUM	40,000	UNKNOWN

MAXIMUM UNKNOWN AS DIES HAVE NEVER BEEN RUN TO DESTRUCTION

The Best Buy is an Accurate Die

ACCURATE©

STEEL RULE DIE MANUFACTURERS

22-24 West 21st Street, New York 10, N. Y. • CH 2-0860-1-2

OVER A QUARTER OF A CENTURY OF DIE MAKING SERVICE TO INDUSTRY

For Purchasers!

In these busy times, the good purchasing agent is more than just a buyer of goods and services. To keep up with trends in his own and supplier industries, he must be a serious student of economics, politics—and even labor relations.

It's a man-sized role that the conscientious P. A. finds himself cast in. He's ever on the lookout for tools that will help him do a better job for his company.

That's why THE IRON AGE decided to develop a special page aimed at helping the P. A. make those all-important decisions on whether to buy now or later; whether to build inventory or cut back; whether to hedge against higher prices or a possible strike in a supplier industry.

Since so many purchasing agents turn each week to the market and price section of THE IRON AGE for up-to-date information on steel and non-ferrous metals, it was decided to run our new page in this section of the magazine.

So that's where you'll find it, starting next week. On the page following THE IRON AGE Steel Summary.

Racing Tips

We've never made any claims that THE IRON AGE included tips on major sports events in its editorial coverage—up to now, that is.

But if you read Ray Kay's West Coast column, May 23, p. 113, you saw pictures and a description of the winning car of this year's Indianapolis 500-mile auto classic on Memorial Day.

Ray predicted: "Average speed for the race should hit a sizzling 136 mph." As it turned out, the average speed was 135.6 mph. That's calling 'em.

There's no intention of making sports forecasting a regular feature. But it shows the wide variety of information you can find within the covers of The National Metalworking Weekly.

No Laughing Matter

Don't let the smile fool you. What Joel Barlow (see cut) is holding in his hand is a copy of the Treasury Dept.'s Bulletin F which sets forth useful lives of plants and equipment for depreciation purposes. And to lawyer Barlow and many others in metalworking it's no laughing matter.

In fact it's downright serious. So much so, that many feel a revision of Bulletin F straitjackets industry's

Joel Barlow and Bulletin F

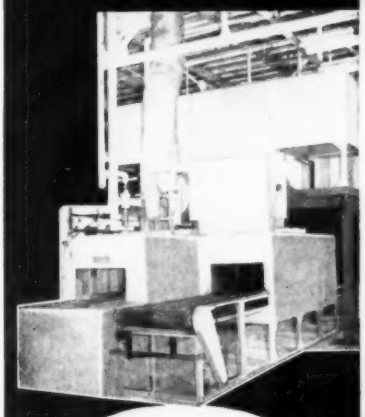
efforts to set aside enough funds for replacement and modernization.

The Treasury recently announced it is considering reinstating and reissuing Bulletin F. It has asked for comments and recommendations from industry by June 30.

To stimulate your thinking into action Mr. Barlow has written this week's special depreciation feature on p. 65. Here you'll find the viewpoint of many in metalworking toward depreciation policies and the author's substitute for Bulletin F.

His opinions are not to be taken lightly. As legal counsel for the National Machine Tool Builders Assoc., American Machine Tool Distributor's Assoc. and the Metal Cutting Institute, Joel Barlow has been well-grounded in metalworking's problems for many years.

NEEDS:
new design
for crucial
metal cleaning
and treating

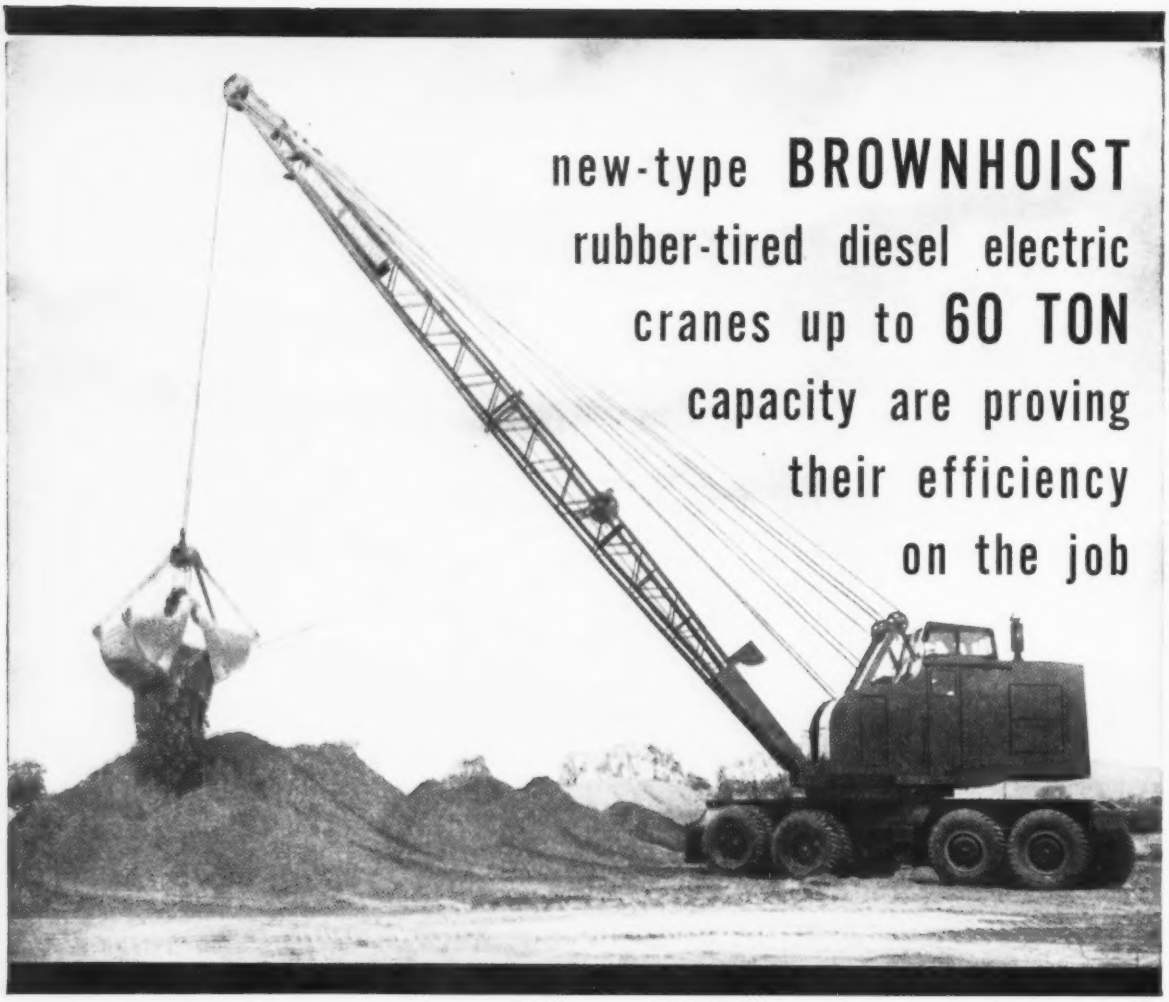


SELECTION:
Cincinnati

You can't afford to take chances on over 2,345 sq. ft. of metal cleaning equipment. That's why Briggs & Stratton Corp., the world's largest manufacturer of 4-cycle, single cylinder, gasoline engines insisted on CINCINNATI. Ingenious use of suspended, platform-mounted and U-shaped units with transfer conveyors fits all 4 machines into just 765 sq. ft., reduces manpower and maintenance.

You can rely on CINCINNATI experts. Write today for details.

Cincinnati
CLEANING and FINISHING MACHINERY COMPANY
2017 Hageman St., Cincinnati 41, Ohio



new-type BROWNHOIST rubber-tired diesel electric cranes up to 60 TON capacity are proving their efficiency on the job

183

BROWNHOIST MATERIAL HANDLING EQUIPMENT GIVES A LIFT TO AMERICAN INDUSTRY

INDUSTRIAL BROWNHOIST CORPORATION
BAY CITY, MICHIGAN • DISTRICT OFFICES: New York, Philadelphia, Cleveland, Chicago, Denver, San Francisco, Montreal • AGENCIES: Detroit, Birmingham, Houston

The new Brownhoist Wagon-Cranes are specifically designed to do an outstanding job wherever high mobility and high capacity are required. You'll see them at work performing heavy duty jobs in mines, quarries, steel mills, for railroad and lumber operations and for many other large industries. Equipped with dynamatic clutch, anti-friction bearings at all essential points, power steering, electric travel and electric rotation. Mounted on a 12 wheel crane carrier capable of speeds up to 8 miles per hour, the unit can be operated by one man from easy-to-reach controls. Economical to operate. Available in capacities from 25 to 60 tons. For specification folder or further details, get in touch with our nearest representative or write us at Bay City.

SUBSIDIARY OF Penn-Texas CORPORATION

BROWNHOIST

EXHIBITS, MEETINGS

Western Plant Maintenance & Engineering Show — June 11-13, San Francisco. (Clapp & Poliak, 681 Market St., San Franisco.)

Packaging & Handling Show—Oct. 28-31, Atlantic City. (SIPMHE, One Gateway Center, Pittsburgh 22.)

Metal Show — Nov. 2-8, Chicago. (American Society for Metals, 7301 Euclid Ave., Cleveland 3.)

JUNE

Manufacturing Chemists' Assn. — Annual meeting, June 6-8, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, 1625 Eye St., N. W., Washington 6, D. C.

National Industrial Advertisers Assn. — Annual meeting, June 9-12, Waldorf-Astoria Hotel, New York. Society headquarters, 271 Madison Ave., New York.

American Institute of Chemical Engineers—National meeting, June 9-12, Olympic Hotel, Seattle, Wash. Society headquarters, 25 West 45th St., New York.

National Metal Trades Assn. — Western plant management conference, June 9-12, Dell View Hotel, Lake Delton, Wis. Society headquarters, 337 W. Madison St. Chicago.

American Boiler Manufacturers Assn. & Affiliated Industries—Annual meeting, June 9-12, Skytop, Pa. Society headquarters, 1571 W. 117th St., Cleveland.

The American Society of Mechanical Engineers—Semi-annual meeting, June 9-13, Sheraton-Palace, San Francisco, Calif. Society headquarters, 29 W. 39th St., N. Y.

The Magnesium Assn. — Annual meeting for members only, June 10-11, The Homestead, Hot Springs, Va. Society headquarters, 122 E. 42nd St., New York.

Malleable Founders' Society—Annual meeting, June 13-14, The Broadmoor, Colorado Springs.

Continued on P. 16

Get off-the-shelf delivery on

CHICAGO®
*Induction Hardened**
PRESS BRAKE DIES

ALABAMA—Birmingham
Hinkle Supply Co., Inc.—Phone: 4-4541

CALIFORNIA—Los Angeles
Meyer Sheet Metal Machinery Co.
VAn Dyke 1477

San Francisco
Harron, Rickard & McCone Co.
ATwater 2-2202

INDIANA—Indianapolis
E. L. Humston & Co.—WAlnut 5-9691

IOWA—Bonaparte
Corry's Machine & Tool Co.—Phone: 112

KANSAS—Wichita
Ellfeldt Machinery & Supply Co.
AMherst 7-9773

MASSACHUSETTS—Cambridge
Austin-Hastings Co., Inc. KIrkland 7-4480

MICHIGAN—Detroit
United Saw & Tool Co.—TRinity 2-0246

MINNESOTA—Minneapolis
Minnesota Steel Sup. Co.—ATlantic 6273

MISSOURI—Kansas City
Ellfeldt Machinery & Supply Co.
VIctor 2-5494

NEW YORK—New York
Federal Machinery Co.—CAnal 6-3022
H. Weiss & Co.—CAnal 6-4256

NORTH CAROLINA—Greensboro
Armentrout Mchry. Co.—Phone: 4-8218

OHIO—Cincinnati
Cincinnati Mchry. Co., Inc. TRinity 1-0853

OKLAHOMA—Oklahoma City
Marshall Supply & Equipment Co.
REgent 9-0636

Tulsa
Marshall Supply & Equipment Co.
LUther 4-5275

OREGON—Portland
Pacific Metal Co.—CApitol 7-0693

PENNSYLVANIA—Philadelphia
Milton Equipment Co.—WAlnut 2-1734

TENNESSEE—Nashville
Pearl Equipment Co.—CHapel 2-5476

TEXAS—Dallas
Briggs-Weaver Machinery Co.
LAkeside 8-0311

Fort Worth
Briggs-Weaver Machinery Co.
EDison 6-5621

Houston
Mehl Mchry., Inc.—FAirfax 3-1313
Wessendorff Nelms & Co.—CApitol 7-8181

WASHINGTON—Seattle
Pacific Metal Co.—MAin 6925

WISCONSIN—Eau Claire
Production Equip. Co.—TEmple 2-3483

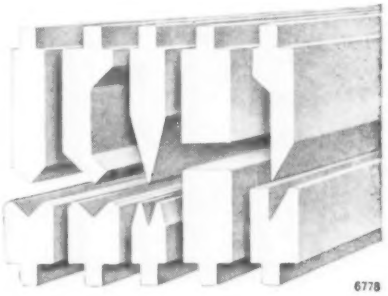
Milwaukee
F. W. Burns Mchry. Co.—FRanklin 4-1540
Production Equip. Co.—GReenfield 6-6075

27
Dealers Offer Stock Deliveries

This country-wide organization of local dealers offers immediate delivery on many CHICAGO *induction hardened* press brake dies. These stock dies are economical, and the quick delivery saves time in tooling. They are available in any length from 4 to 12 feet in increments of 2 feet.

Stock dies are used for a surprisingly large variety of bending operations. And, with CHICAGO *induction hardened* dies you get bonus performance and increased die life at no extra cost. Remember, these dies can be used in any make or size of standard press brake.

On your needs for press brake dies, call your nearest dealer listed here. With Bulletin D-455 you can order by number. Ask for copy.



6778

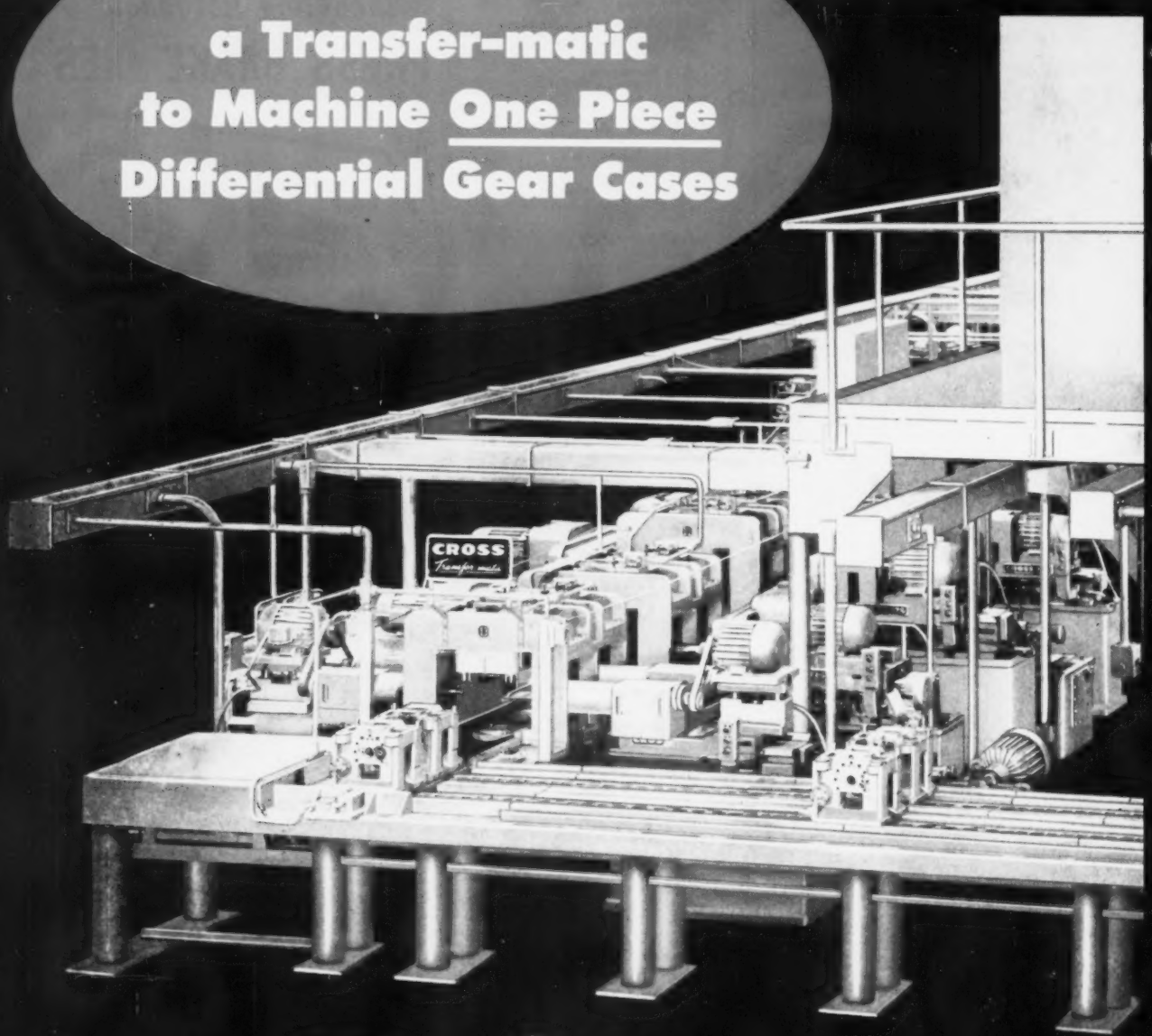
*Induction hardening is a special, high-frequency process used to harden the wear surfaces of CHICAGO dies. Field reports on CHICAGO *induction hardened* dies show up to ten times longer life than conventional press brake dies.

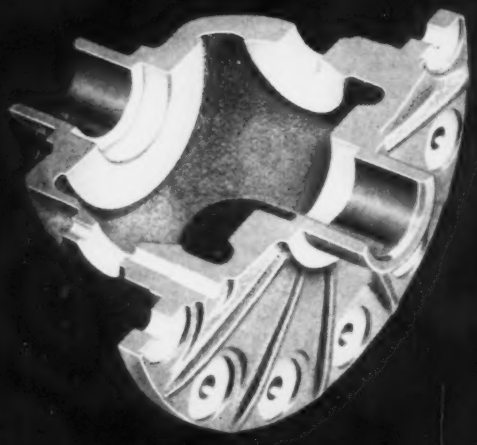
CHICAGO DREIS & KRUMP

Press Brakes • Straight-Side-Type Presses • Press Brake Dies
Hand and Power Bending Brakes • Special Metal-Forming Machines

DREIS & KRUMP
MANUFACTURING CO.
South Loomis Boulevard, Chicago 36, Illinois

Another Cross First – a Transfer-matic to Machine One Piece Differential Gear Cases





Cutaway view of differential gear case showing machined surfaces.

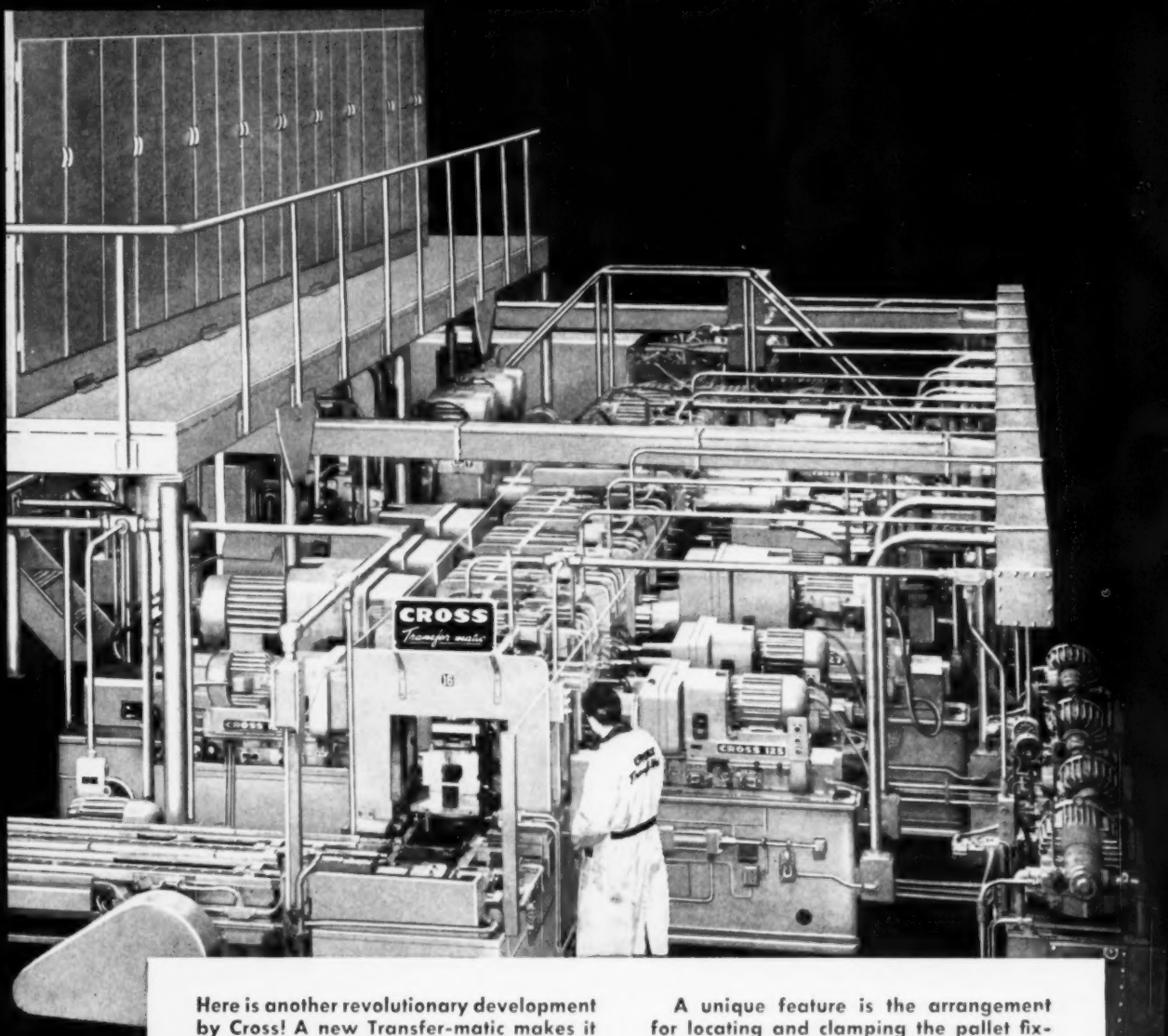
Established 1898

THE CROSS CO.

First in Automation

PARK GROVE STATION • DETROIT 5, MICHIGAN

Another Transfer-matic by Cross



Here is another revolutionary development by Cross! A new Transfer-matic makes it possible to machine and inspect *one piece* rear axle differential gear cases—the first time such a part has been processed on a transfer machine.

Two cases are machined at a time as they travel a distance of 206 feet through 30 stations. Rated capacity is 212 pieces per hour at 100% efficiency. Operations include rough and finish forming the two spherical seats for the pinions; rough and finish boring and facing the two seats for the side gears; drilling, boring and reaming the pinion shaft hole; drilling and reaming the lock pin hole; drilling, chamfering, spotfacing and reaming the twelve ring gear mounting holes.

A unique feature is the arrangement for locating and clamping the pallet fixtures. In each station, elevators lift the fixtures from transfer bars into engagement with locating pins and stop buttons fixed in the overhead bridge structures. Individual wedges then back up the elevators to secure the pallets. After cutting, the elevators lower the pallets onto the transfer bars, which carry them to the next station.

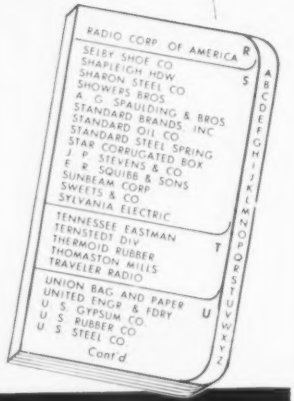
Other features include construction to JIC Standards, hardened and ground ways, complete interchangeability of all standard and special parts, pre-set cutting tools and Cross Machine Control Units which program tool changes to reduce machine downtime.

Flow principle applied to production of steel gratings. Logan Roller Conveyors form work tables and permit easy movement of product through successive operations. Gaps between adjoining sections provide passageway for operators.

The LEADERS use Logan

. . . to keep things moving, in the modern industrial plant. Costly stops and starts are avoided—with correctly engineered Logan Conveyors. This famous equipment delivers materials and parts at convenient working heights, dispatches the product without manual effort to the next operation, puts flow into production. "Stay with the leaders—specify Logan Conveyors." Remember, they give you that something extra in engineering and design. Write for further information or for nearest engineer to call.

LOGAN CO., 545 CADEL ST., LOUISVILLE 6, KY.



Logan Conveyors

EXHIBITS, MEETINGS

Continued from P. 13

Colo. Society headquarters, 1800 Union Commerce Bldg., Cleveland.

Instrument Society of America — National symposium on instrumental methods of analysis, June 13-15, University of Chicago. Society headquarters, 313 Sixth Ave., Pittsburgh.

Pressed Metal Institute — Annual national sales conference for the metal stamping industry, June 14, Hotel Carter, Cleveland. Society headquarters, 3673 Lee Rd., Cleveland.

Assn. of Steel Distributors, Inc.— Steel distribution seminar, June 14-17, Michigan State University, Lansing, Mich. Society headquarters, 29 Broadway, New York.

American Society for Testing Materials—Annual meeting with sessions on varied fields of materials technology, June 17-21, Chalfonte-Haddon Hall, Atlantic City. Society headquarters, 1916 Race St., Philadelphia.

Drop Forging Assn. — Annual meeting, June 19-22, Grand Hotel, Mackinac Island, Mich. Society headquarters, 419 S. Walnut St., Lansing, Mich.

American Institute of Chemical Engineers — 50th anniversary meeting, June 22-27, Bellevue-Stratford Hotel, Philadelphia. Society headquarters, 25 W. 45th St., N. Y.

Alloy Casting Institute — Annual meeting, June 23-25. The Homestead, Hot Springs, Va. Society headquarters, 32 Third Ave., Mineola, N. Y.

Wire Reinforcement Institute— Annual spring meeting, June 24-25, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, 1049 National Press Bldg., Washington, D. C.

Concrete Reinforcing Steel Institute—Annual meeting, June 24-29, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, 38 S. Dearborn St., Chicago.

Unsurpassed-anywhere!

IT ALL COMES DOWN to one fact... that you can always count on Roebling high carbon flat spring steel to reduce preparation time, machine stoppages and rejects to a minimum. What's more, it's made as you want it... annealed, hard rolled untempered; scaleless tempered; tempered and polished, blued or strawed.

You *pay* for the best every time you buy flat spring steel. Make sure you *get* it. Specify Roebling. John A. Roebling's Sons Corporation, Trenton 2, N. J.

ROEBLING

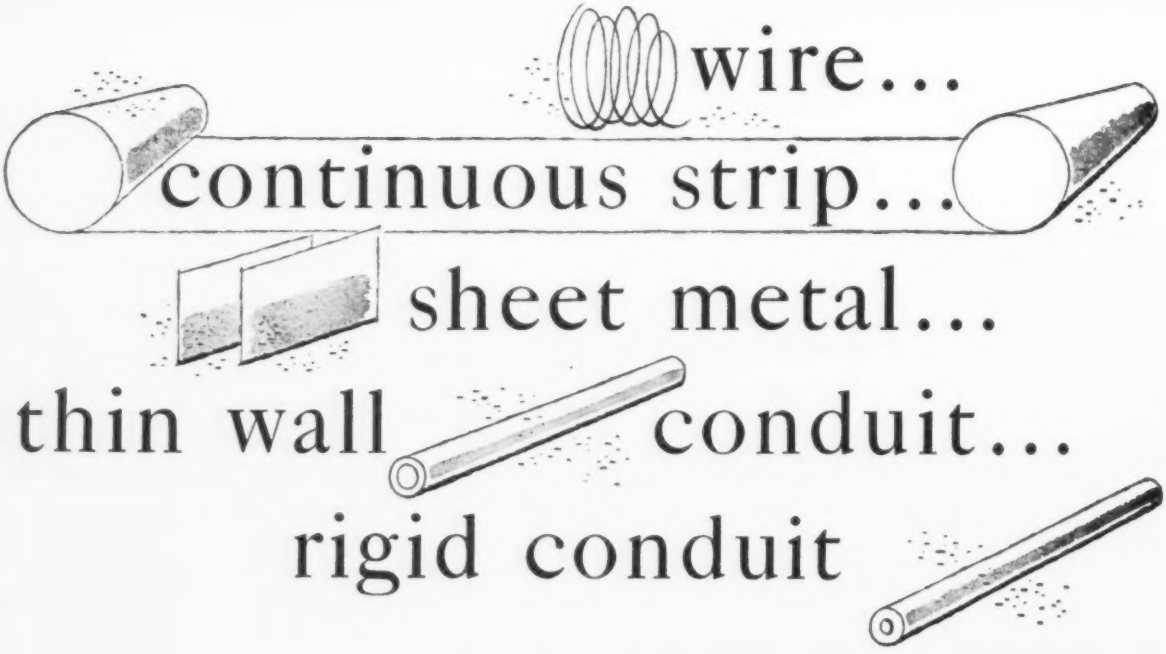
Subsidiary of The Colorado Fuel and Iron Corporation

California giant Sequoias—largest of all trees.

ATLANTA, 934 ACON AVE. • BOSTON, 31 BEDFORD ST. & 5 SITTSBURGH ST. • CHICAGO, 6525 W. ROOSEVELT RD. • CINCINNATI, 2340 DIXMYTH OLD MILL RD. EXTENSION • CLEVELAND, 1325 LAKEWOOD HEIGHTS BLVD. • DENVER, 1400 JACKSON ST. • DETROIT, 815 FISHER BLDG. • HOUSTON, 5216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • ROCHESTER, 1 FLINT ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • ST. LOUIS, 3001 DELMAR BLVD. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, 19 RECTOR ST., NEW YORK 6, N.Y.

PHOTO BY MC MANUS

IF YOU PROCESS...



YOU CAN *Automate* ALL THESE OPERATIONS:

- cleaning
- pickling
- plating
- phosphating
- scrubbing
- paint prep
- electrogalvanizing

For Faster, Better Production . . . At Far Less Cost
with an
H-VW-M CONTINUOUS LINE SYSTEM

WRITE today, at no obligation, for the facts about an H-VW-M System that can bring cost-saving *automation* to your continuous line finishing—a system that can be integrated with your shearing, forming, slitting or annealing operations.

Hanson-Van Winkle-Munning Company, Matawan, New Jersey. Offices in principal cities

H-VW-M

Industry's Workshop for the Finest in Plating, Anodizing, and Polishing Processes • Equipment • Supplies

PLATEMANSHIP – Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing – of a complete equipment, process and supply line for every need.

TO PRODUCE
QUALITY
SOCKET SCREWS
THE H-K WAY—

X-RAY UNITS PERFORM A COMPLETE AND ACCURATE METAL ANALYSIS

We know it's safe to guarantee unfailing performance for all H-K products!

For the finest in socket screw products . . . for unmatched SAME-DAY SERVICE—the name to remember is Holo-Krome. Write for free catalog and technical information.

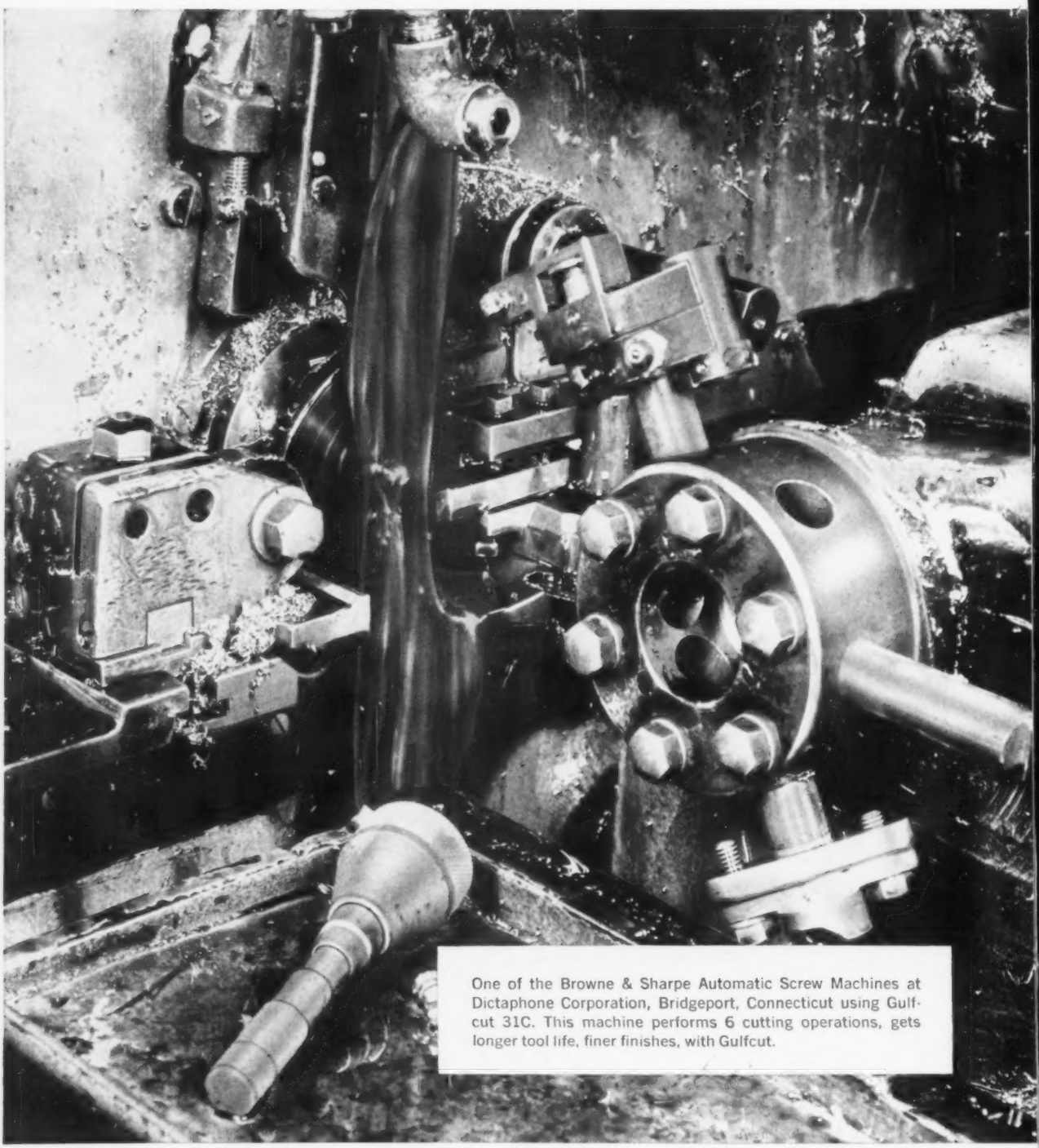
Sold Only Through Authorized Holo-Krome Distributors

HOLO-KROME SOCKET SCREWS

THE HOLO-KROME SCREW CORPORATION • HARTFORD 10, CONN.

At Dictaphone Corporation, Bridgeport, Connecticut...

Closer tolerances, better



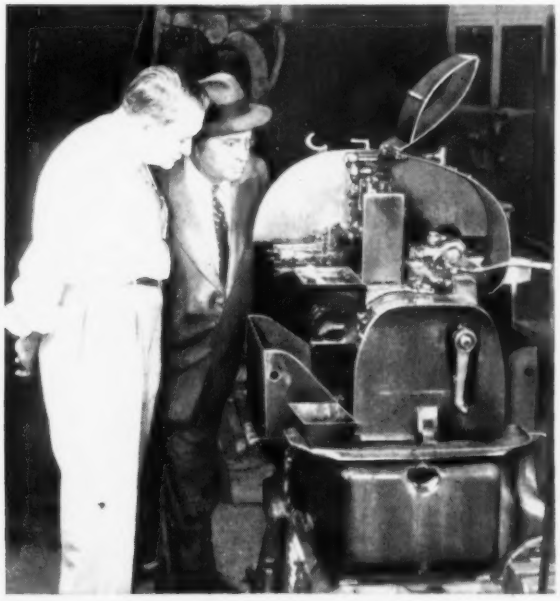
One of the Browne & Sharpe Automatic Screw Machines at Dictaphone Corporation, Bridgeport, Connecticut using Gulfcut 31C. This machine performs 6 cutting operations, gets longer tool life, finer finishes, with Gulfcut.

finishes, fewer rejects ...with GULFCUT!

Dictaphone has used Gulfcut 31C since Gulf first introduced this cutting oil—has used it exclusively for the past 10 years. On brass, bronze, aluminum, or any of the several types of steel used in manufacturing precision parts for Dictaphone Machines . . . *one* cutting oil, Gulfcut, does the job!

Says Joseph A. Maloney, Process Engineer: "Day in, day out, our machines are producing fine quality work, using Gulfcut. We get steady production at an even rate—hold tolerances as close as 3 ten thousandths. Gulfcut 31C provides the necessary combination of lubrication and cooling that leads to longer tool life, better finishes, with fewer rejects."

Whether you need a mineral-lard oil, a sulfurized-mineral oil, a sulfurized-mineral-lard oil, a sulfo-chlorinated-lard oil, or an emulsifying oil (the Gulfcut line includes all of these) . . . call your Gulf Sales Engineer. He will be glad to recommend the proper cutting oils for *your specific needs.*



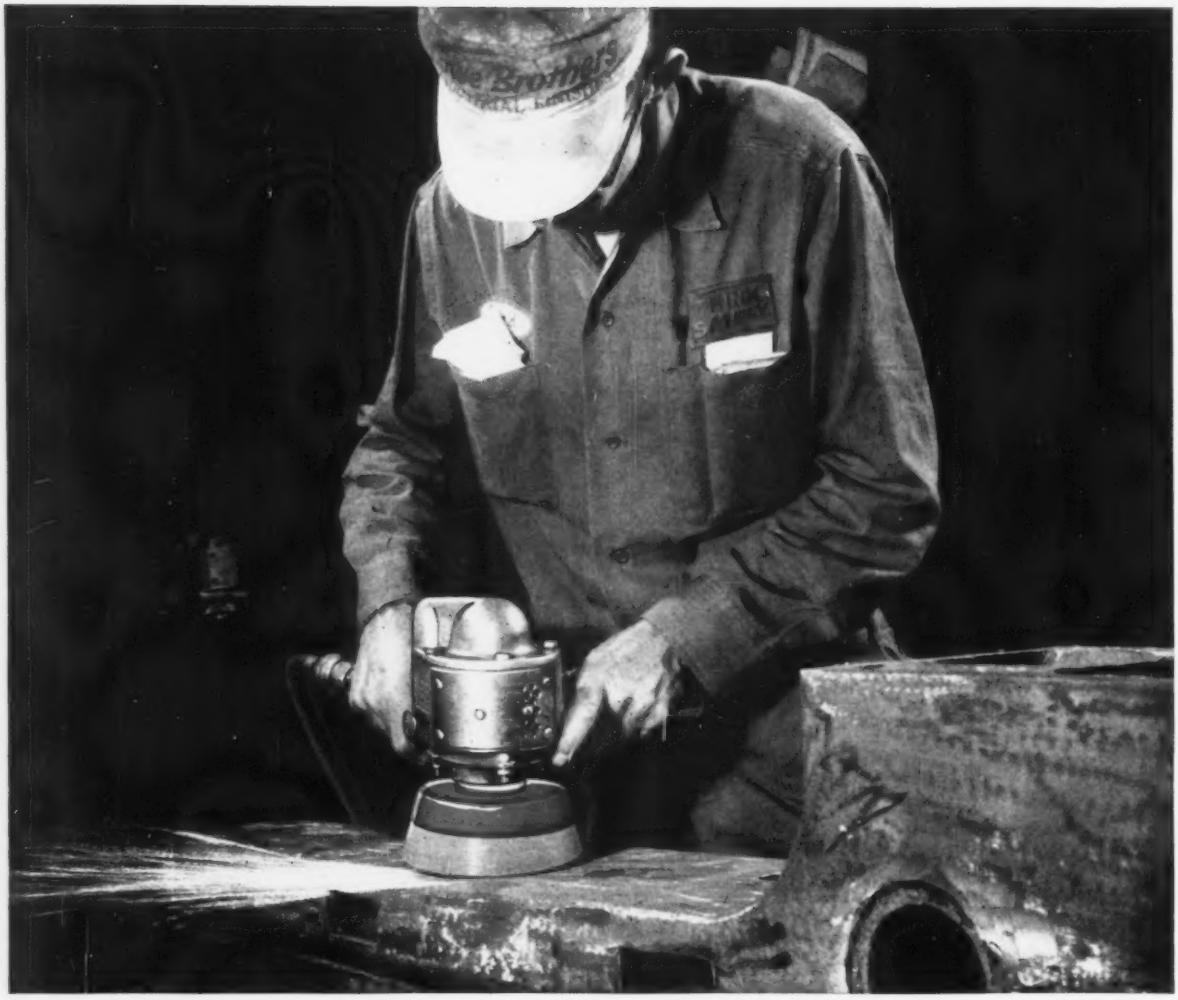
Joseph A. Maloney, Process Engineer at Dictaphone, and J. A. Magill, Gulf Sales Engineer, observing Gulfcut 31C at work on precision parts. Gulfcut cutting oils excel over a wide range of cutting applications . . . help to reduce machining costs.

GULF OIL CORPORATION

1822 Gulf Building, Pittsburgh 30, Pa.

GULF®

THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS



Removes metal in ¼ the time

JOB: Cleaning machine tool castings, the Rotor B-35 Vertical Air Grinder paid for itself out of savings in this plant in 13.3 weeks. The former 3600 rpm electric grinder took 40 minutes to remove a pound of metal. **RESULT:** The 6000 rpm B-35 does it in 10 minutes—saving 75% in grinding time.

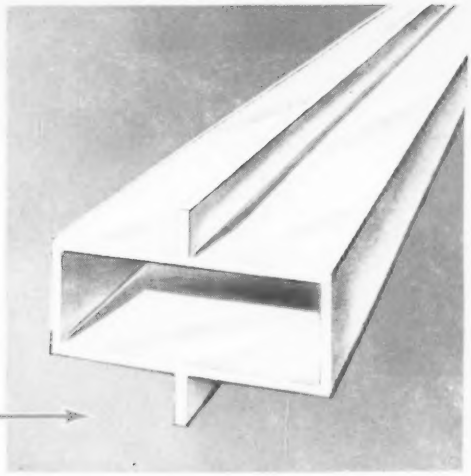
Your nearby Rotor Application Engineer will gladly demonstrate this or other new Rotor tools on *your* job. Ask for Bulletin 56. The ROTOR TOOL Company, Cleveland 32, Ohio.

ROTOR TOOLS
CLEVELAND, OHIO

Here's the RIGHT TOOL for YOUR job!

Rotor Air Tools: Assembly Tools • Drills • Small Wheel Grinders
Straight Grinders • Vertical Grinders • Scalers • Chippers • Rammers
Rotor High-Cycle Electric Tools: Grinders • Polishers • Sanders

If you want 85 feet of aluminum architectural fin tubing like this...



For a store front like this...

...get the exact amount you want, when you want it—cut to proper lengths—from your

REYNOLDS DISTRIBUTOR

who can also supply—from warehouse stocks—copings, gravel stops, thresholds, window sills, extruded angles, channels, bar and handrails.

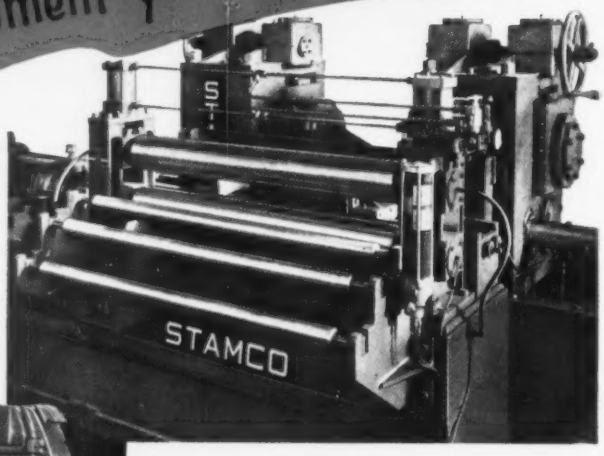
See "CIRCUS BOY", Reynolds exciting dramatic series, Sundays, NBC-TV.

Look under "Aluminum" in the classified phone book for your Reynolds Distributor

for special steel mill operations

Pickle Line Trimmer

—call or write Stamco for the equipment you need



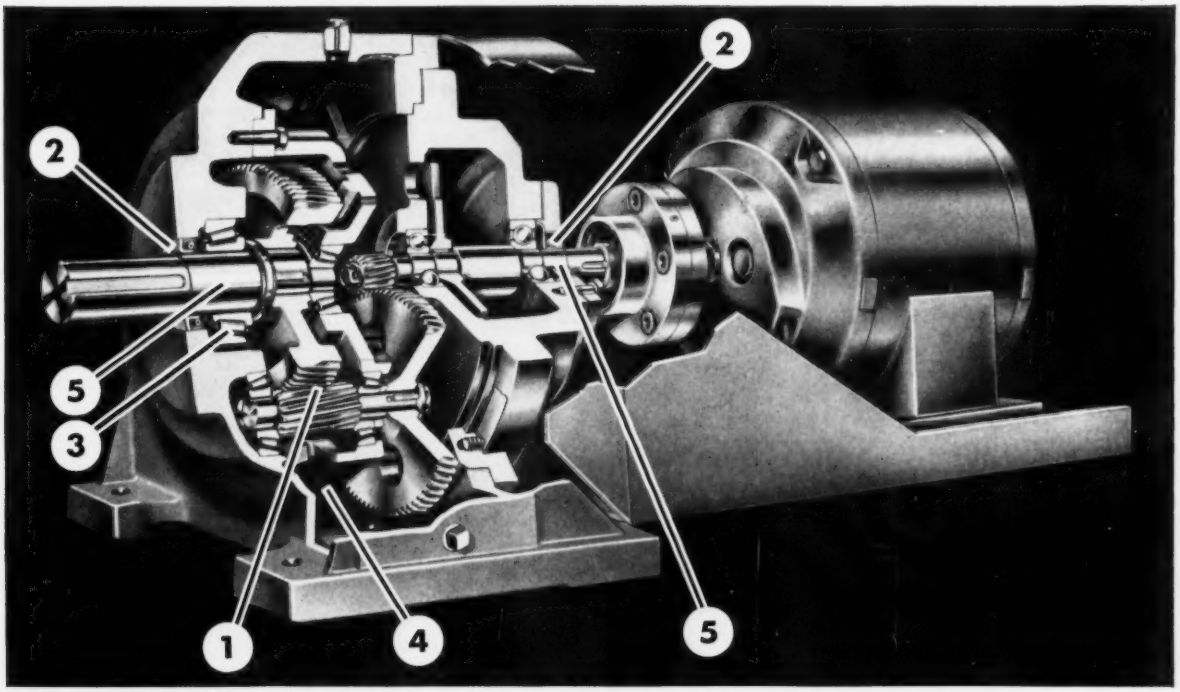
Tin Line Trimmer

Up-Cut Shear

Stamco can solve your problems

Available in a wide range of sizes and speeds for warehouse and mill duty on ferrous and non-ferrous materials. Tell us your needs and we'll give you complete details. No obligation.

Stamco, Inc., New Bremen, Ohio

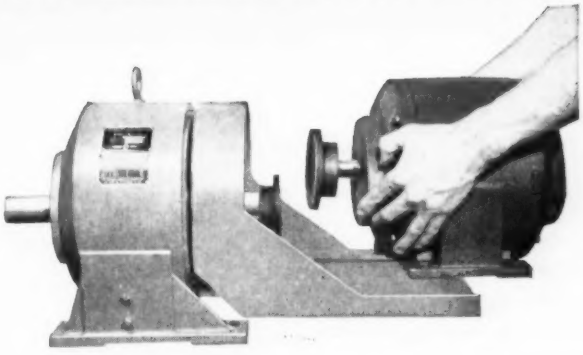


Why Phillie Gear Utility GearMotoRs reduce downtime...motor inventory

The new Philadelphia Utility GearMotoR has already won wide acceptance among plant engineers and designers, because: any standard NEMA foot-mounted motor can be used . . . *without special modifications for shaft, flange or supporting devices.* Here is a packaged power drive, ideal for use where flange-mounted motors are a supply problem. You can utilize readily available or existing foot-mounted motors immediately, because of the integral motor mounting base. This new Utility GearMotoR substantially reduces machinery downtime for motor changeover or replacement. Simply remove bolts securing motor feet, separate shaft coupling . . . lift motor off . . . and replace . . . all in a few minutes.

Steel motor support is rigidly ribbed to maintain shaft alignment, precision-drilled to receive NEMA motor frame mountings. Save time and money all around. Specify the Philadelphia Utility GearMotoR.

Send for Catalog GM-560 which fully describes and illustrates the new Philadelphia GearMotoRs, Utility GearMotoRs, In-Line Reducers and Motorized Worm Gear Drives.



1. HELICAL GEARING assures silent operation, increased strength, longer life and minimum friction loss. Teeth are crowned shaved and induction hardened for optimum performance.

2. TWO-WAY SEALS lock oil in, and seal dirt out.

3. OVERSIZE THRUST BEARINGS handle big overhung loads.

4. OIL BATH LUBRICATION keeps gears and bearings continually showered with clean oil.

5. HEAVY SHAFTING, heat treated alloy steel, eliminates possibility of bending or twisting under heavy loads.

phillie gear®

PHILADELPHIA GEAR WORKS, INC.

ERIE AVE. & G STREET, PHILADELPHIA 34, PENNA.

Offices In all Principal Cities

INDUSTRIAL GEARS & SPEED REDUCERS • LIMITORQUE VALVE CONTROLS • FLUID MIXERS • FLEXIBLE COUPLINGS

Virginia Gear & Machine Corp. • Lynchburg, Va.

La Salle

fatigue-proof™

STEEL BARS

MADE BY e.t.d. PROCESS

Elevated Temperature Drawing

HAVE A UNIQUE COMBINATION OF

uniform properties

HIGH STRENGTH, MACHINABILITY, RESISTANCE TO WEAR AND FATIGUE, DIMENSIONAL STABILITY

1⅞" round FATIGUE-PROOF. Magnification: 750X

The microscope shows the uniformity of FATIGUE-PROOF. Its uniformly pearlitic structure parallels its uniformity of properties from the surface to the center of the bar.

FATIGUE-PROOF strength and hardness are developed by "e.t.d." (Elevated Temperature Drawing). Unlike quenching and tempering, its effect is the same from surface to the center of the bar. It works a large bar as uniformly as it does a small bar.

There is no mass effect.

The microscope proves it. Surface, center, or mid-radius, FATIGUE-PROOF is pearlitic. There are no mixtures of bainite, martensite, and pearlite. FATIGUE-PROOF is uniform bar to bar, size to size, and lot to lot.

T. M.—Trade-marks of La Salle Steel Company

JUST PUBLISHED—Request your copy of 24-page brochure, "A new material" . . . it tells the complete story of FATIGUE-PROOF.

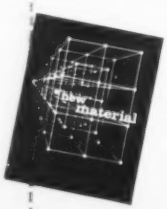
Name _____

Company _____

Address _____

City _____ Zone ____ State _____

Mail to LaSalle Steel Co., 1436 150th St., Hammond, Ind.



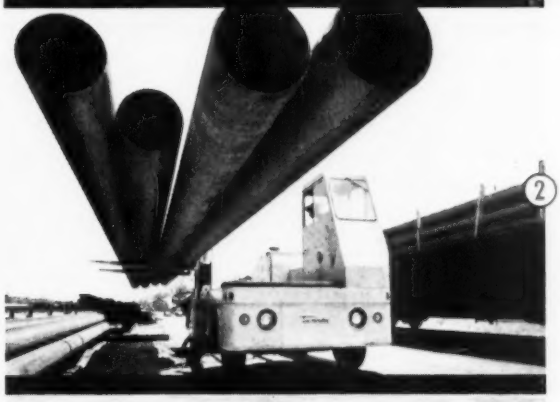
La Salle **STEEL CO.**

1436 150th Street • Hammond, Indiana

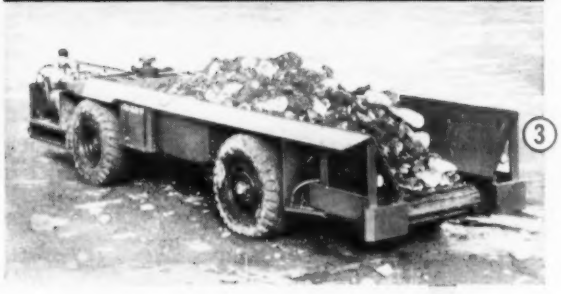
Manufacturers of America's Most Complete Line of Quality Cold-Finished Steels Bars

NEW VEHICLES FOR NEW PERFORMANCE

①



②



③

VICKERS®

HYDRAULIC SYSTEMS

for All Types of

MOBILE EQUIPMENT

Vickers Hydraulic Systems make vital contributions to the efficient operation of an extremely wide range of vehicles. To the inherent advantages of hydraulic control, Vickers adds the benefits of a nation-wide and full time field engineering and service organization of unequaled experience. Vickers has the complete line of hydraulic equipment necessary to take undivided system responsibility . . . to eliminate any risk of incompatibility of hydraulic components. Ask for a copy of Bulletin M5101.

VICKERS INCORPORATED
DIVISION OF SPERRY RAND CORPORATION
Mobile Hydraulics Division
ADMINISTRATIVE and ENGINEERING CENTER
Department 1420 • Detroit 32, Michigan

Application Engineering Offices: • ATLANTA • CHICAGO • CINCINNATI CLEVELAND • DETROIT • GRAND RAPIDS • HOUSTON • LOS ANGELES AREA (El Segundo) • MINNEAPOLIS • NEW YORK AREA (Summit, N.J.) • PITTSBURGH AREA (Mt. Lebanon) • PORTLAND, ORE. • ROCHESTER • SAN FRANCISCO AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA
IN CANADA: Vickers-Sperry of Canada, Ltd., Toronto

Engineers and Builders of Oil Hydraulic Equipment Since 1921

7354-R

① **AUSTIN-WESTERN HYDRAULIC CRANE**
In addition to power steering, Vickers Oil Hydraulics provide fast, smooth and positive (a) turntable rotation, (b) boom elevation, (c) raising and lowering of load, (d) extending and retracting of boom.

② **BAKER-RAULANG TRAVELOADER**
Vickers Hydraulics provides power steering and multiple movements that enable Traveloader to quickly reach out sideways and pick up a long load, place it on the vehicle's deck for traveling, and then stack it up to 12′ high.

③ **DART UNDERGROUND TRUCK**
Vickers Hydraulics operates the reversible conveyor floor that permits fast and easy trim when loading, and then rapid dumping. Also has Vickers Hydraulic power steering for shuttle operation.

Get off-the-shelf delivery of

AUTHORIZED
CARBOLOY
CEMENTED CARBIDE
STANDARD TOOLS AND BLANKS
DISTRIBUTORS

ALA. **BIRMINGHAM 2**
The Young & Vann Supply Co.
MOBILE
Oliver H. Van Horn Co., Inc.
ARIZ. **PHOENIX**
Garrett Supply Company
CALIF. **LOS ANGELES 58**
Garrett Supply Company
LOS ANGELES 54
Machinists' Tool & Supply Co.
SAN DIEGO 1
Acme Tool & Supply Co.
SAN FRANCISCO 3
C. W. Marwedel
SAN JOSE
Industrial Tool & Supply Co.
COLO. **DENVER 17**
The Mine & Smelter Supply Co.
CONN. **BRIDGEPORT 1**
The Hawley Hardware Co.
HARTFORD 1
Silliter-Holden, Inc.
WATERBURY
The White Supply Co.
FLA. **JACKSONVILLE 1**
The Cameron & Barkley Company
MIAMI 5
The Cameron & Barkley Company
ORLANDO
The Cameron & Barkley Company
TAMPA 1
The Cameron & Barkley Company
GA. **ATLANTA 3**
Pye-Barker Supply Company
ATLANTA 9
Southern Tool Distributing Co.
SAVANNAH
The Cameron & Barkley Company
ILL. **AURORA**
Dietz Industrial Supply Co.
CHICAGO 6
Samuel Harris & Company
CHICAGO 6
Supplies, Inc.
ILL. **CHICAGO 7**
Screw Machine Supply Co.
DECATUR
Miller Industrial Supply Co.
PEORIA 2
Couch & Heyle, Inc.
QUINCY
James Supply Company
ROCKFORD
Rockford Tool & Transmission Co.
Samuel Harris & Company
SPRINGFIELD
Screw Machine Supply Co.
WAUKEGAN
Samuel Harris & Company
IND. **FORT WAYNE 5**
Tools & Abrasives, Inc.
INDIANAPOLIS 4
The Browning Tool & Supply Co. Inc.
INDIANAPOLIS 9
Vonnegut Hardware Company
SOUTH BEND 24
The South Bend Supply Company
IOWA **DAVENPORT**
Davenport Engineering Co.
SIOUX CITY 2
Sioux Machinery & Supply Co.
KANS. **WICHITA 7**
Ellfeldt Machinery & Supply Co.
KY. **LOUISVILLE 3**
Louisville Mill Supply Co.
PADUCAH
Henry A. Petter Supply Company
LA. **BATON ROUGE**
Oliver H. Van Horn Co., Inc.
NEW ORLEANS 6
Edgar Murray Supply Co., Inc.
NEW ORLEANS 1
Oliver H. Van Horn Co., Inc.
SHREVEPORT
Harris Frederic & Co., Inc.
Oliver H. Van Horn Co., Inc.
MD. **BALTIMORE 2**
The L. A. Benson Company, Inc.
BALTIMORE 3
The W. L. Reynolds Co.
MASS. **BOSTON 15**
Arthur A. Crafts Co., Inc.
WEST SPRINGFIELD
Peaslee-Wells, Inc.
WORCESTER 8
Elwood Adams Corporation
MICH. **BATTLE CREEK**
Kendall Hardware—Mill Supply Co.
BENTON HARBOR
Kendall Industrial Supply Co.
DETROIT 20
The B-H Tool & Supply Company
DETROIT 34
The Chas. A. Strelinger Co.
FERNDALE
Sterling Supply Company
FLINT 2
Geo. W. Hubbard Hardware Co.
GRAND RAPIDS 9
A. L. Holcomb Company
JACKSON
C. E. Hamlin Company
KALAMAZOO
Kendall Hardware—Mill Supply Co.
LANSING 29
Mill Supplies Corporation
MUSKEGON
Muskegon Hardware & Supply Co.
PORT HURON
Beard Campbell Company
SAGINAW
Mahar Tool Supply Co., Inc.
MINN. **MINNEAPOLIS 1**
The John C. Eide Company
MINNEAPOLIS 4
The Satterlee Company
MISS. **JACKSON**
Dilworth of Mississippi, Inc.
Oliver H. Van Horn Co., Inc.
MO. **JOPLIN**
Industrial Equipment Co.
KANSAS CITY 6
Ellfeldt Machinery & Supply Co.
ST. LOUIS 10
Colcord-Wright Machinery & Supply Co.
NEB. **OMAHA 2**
The Balbach Company
N.J. **KEARNY**
A. N. Nelson, Inc.
NEWARK 2
Squier, Schilling & Skiff, Inc.
Division of Alban Corporation
TRENTON 8
Wiley-Hughes Supply Co., Inc.
WOODBRIDGE
Hansen & Yorke Co. of New Jersey

END DELIVERY DELAYS, BY ORDERING CARBOLOY®

CARBOLOY products from these 147 Distributors

N.M.	**ALBUQUERQUE** Gorman Engineering Co.
N.Y.	**ALBANY 1** Sager-Spuck Supply Company, Inc.
	BINGHAMTON Syracuse Supply Company
	BROOKLYN 31 A. N. Nelson, Inc.
	BUFFALO 2 R. C. Neal Company, Inc.
	BUFFALO 23 Austin Ford Logan, Inc.
	ELMIRA HEIGHTS R. C. Neal Company, Inc.
	MASSENA Syracuse Supply Company
	NEW YORK 7 Hansen & Yorke Co., Inc.
	ROCHESTER 3 R. C. Neal Company, Inc.
	ROCHESTER Syracuse Supply Company
	SCHENECTADY Syracuse Supply Company
	SYRACUSE 1 Syracuse Supply Company
	UTICA Syracuse Supply Company
N.C.	**CHARLOTTE** Atlas Supply Company The Henry Walke Co.
	GREENSBORO Remco Supply, Inc.
	WINSTON-SALEM Atlas Supply Company
OHIO	**AKRON 4** Service Tool & Supply Co.
	CANTON 11 Service Tool & Supply Co.
	CINCINNATI 2 The E. A. Kinsey Company
	CLEVELAND 13 Strong, Carlisle & Hammond Div White Sewing Machine Corporation
	COLUMBUS 8 The E. A. Kinsey Company
	DAYTON 1 Dayton Supply & Tool Co.
OHIO	**DAYTON 2** The E. A. Kinsey Company
	LIMA McKee Tool & Supply Co.
	TOLEDO 1 Mill & Factory Supply Co.
	WARREN Reese Hardware & Supply Co.
OKLA.	**DUNCAN** Duncan Equipment Co.
	OKLAHOMA CITY Marshall Supply & Equipment Co.
	TULSA 1 Marshall Supply & Equipment Co.
ORE.	**PORTLAND 9** The General Tool Company
	PORTLAND 4 J. E. Haseltine & Company
PA.	**ALLENTOWN** Wm. H. Taylor & Co., Inc.
	ERIE Erie Mfg. & Supply Corp.
	HARRISBURG Raub Supply Company
	KINGSTON Harris Hardware & Supply Co., Inc.
	LANCASTER Raub Supply Company
	PHILADELPHIA 7 Alden Supply Company, Inc.
	PHILADELPHIA 25 Theo. C. Ulmer, Inc.
	PITTSBURGH 3 Harris Pump & Supply Company
	SCRANTON 2 The Bittenbender Co.
	WEST READING Seaman Mill Supplies, Inc.
	WILLIAMSPORT 34 Lowry Electric Company, Inc.
R.I.	**PROVIDENCE 1** Providence Mill Supply Co.
S.C.	**CHARLESTON** The Cameron & Barkley Company
	GREENVILLE Poe Hardware & Supply Co.
S.D.	**RAPID CITY** The Balbach Company
TENN.	**CHATTANOOGA** Mills & Lupton Supply Co.
	KNOXVILLE 1 The W. S. Murrian Company
	MEMPHIS 2 J. E. Dilworth Company
TEXAS	**DALLAS 22** Briggs-Weaver Machinery Co.
	DALLAS 1 Tool Supply & Engineering Co.
	EL PASO El Paso Saw & Belting Supply Co. Mine & Smelter Supply Co.
	FORT WORTH Briggs-Weaver Machinery Co. Oliver H. Van Horn Co., Inc. Tool Supply & Engineering Co.
	HOUSTON 11 Briggs-Weaver Machinery Co. A. J. Rod Company, Inc.
	HOUSTON Oliver H. Van Horn Co., Inc.
	LONGVIEW Tool Supply & Engineering Co.
	LUBBOCK Tool Supply & Engineering Co.
	WACO Tool Supply & Engineering Co.
UTAH	**SALT LAKE CITY 1** The Mine & Smelter Supply Co.
VA.	**NORFOLK 1** Empire Machinery & Supply Corp.
	NORFOLK 10 The Henry Walke Co.
	RICHMOND 15 Industrial Supply Corporation
	ROANOKE 8 Tidewater Supply Company, Inc.
	WAYNESBORO Mize Supply Company
WASH.	**SEATTLE 4** J. E. Haseltine & Company
	SPOKANE 2 J. E. Haseltine & Company
W. VA.	**CHARLESTON 26** Baldwin Supply Company
WIS.	**MILWAUKEE 16** Rickert Industrial Supply Co.
T.H.	**HONOLULU 1** American Factors, Ltd.

REDUCE YOUR INVENTORIES CEMENTED CARBIDE PRODUCTS

Whether you need one item — or up to fifty packages — you'll profit in many ways when you do business with your Authorized Distributor of Carboloy cemented carbides.

You can reduce inventories by using his local stockroom as your own. You'll save on handling and ordering costs by buying from a single source. You'll eliminate the cost and delays of "long distance" deliveries.

Whether you need standard tools, blanks, inserts, or toolholders, your Carboloy Distributor can deliver from his shelf to your machine in not much more time than it takes to phone in your order.

Authorized Carboloy Distributors can fill your orders faster, because they carry the largest stocks of carbide products in the industry. They back up their complete stocks and fast deliveries with expert technical assistance. Their men are factory-trained by the nation's largest and most experienced manufacturer of cemented carbides.

The name of your local Authorized Carboloy Distributor is listed above — and his phone number is in the Yellow Pages of your telephone directory. Call him today . . . and get acquainted with the many services only he can offer. *Metallurgical Products Department of General Electric Company, 11153 E. 8 Mile Ave., Detroit 32, Michigan.*

Progress Is Our Most Important Product

GENERAL ELECTRIC

For Increased Production, Lowered Costs . . .

SPECIFY YOUNGSTOWN SHEETS AND STRIP

Batteries of modern forming presses are busy working around-the-clock to keep today's auto body production in high gear. In order to maintain their reputations for high product quality, leading producers specify Youngstown Sheets and Strip because they're a blend of the proper combination of tensile strength, surface finish, flatness and ductility. Our satisfied customers tell us they get:

- Increased Over-all Production
- Lowered Reject Rates
- Faster and More Accurate Forming
- Decreased Fabrication and Die Costs

Why not make Youngstown your sheet and strip specification for improved product quality—and lowered production costs?

Youngstown Sheets and Strip are known throughout the stamping and drawing industry for their uniform high quality. Rigid quality control over every phase of their production provides a steel to meet **your** exact specifications. Since Youngstown's best—why settle for less?

For additional information or metallurgical field assistance, call or write your nearest Youngstown District Sales Office—or write directly to our Home Office.

Photo Courtesy of General Motors Corp.

COLD ROLLED SHEETS

QUALITY YOUNGSTOWN SERVICE

AND STRIP

THE YOUNGSTOWN SHEET AND TUBE COMPANY

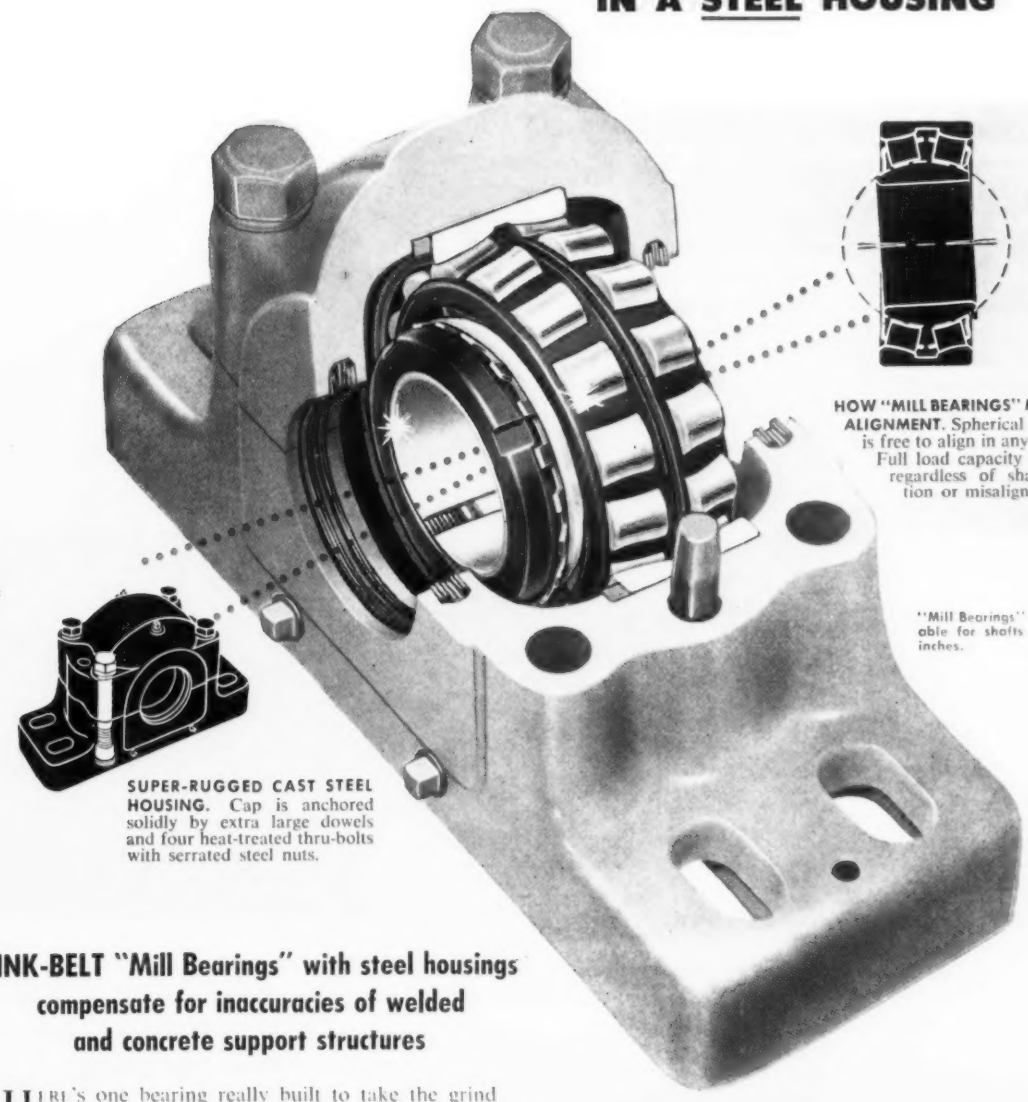
Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices - Youngstown 1, Ohio

District Sales Offices in Principal Cities

HERE'S self-alignment

IN A STEEL HOUSING



HOW "MILL BEARINGS" MAINTAIN ALIGNMENT. Spherical inner ring is free to align in any direction. Full load capacity is assured regardless of shaft deflection or misalignment.

"Mill Bearings" are available for shafts up to 11 inches.

SUPER-RUGGED CAST STEEL HOUSING. Cap is anchored solidly by extra large dowels and four heat-treated thru-bolts with serrated steel nuts.

LINK-BELT "Mill Bearings" with steel housings compensate for inaccuracies of welded and concrete support structures

HERE'S one bearing really built to take the grind and grime of heavy loads in steel mills, mines, foundries and other extra-severe applications. The self-aligning Link-Belt "Mill Bearings" with cast steel housing adjust for misalignment of shafts and support structures. Furthermore, it eliminates the need for extra heavy shafting to avoid deflections which are ruinous to ordinary bearings.

This bearing is effectively sealed, self-contained, factory-adjusted—needs no shims or alignment rings at installation. Get full facts in Book 2565A . . . or Book 2550, which covers industry's most complete line of self-aligning ball and roller bearing blocks. Ask any of the 40 Link-Belt offices or your authorized stock-carrying distributor. 14,442

LINK-BELT

self-aligning ball and roller bearings

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville (Sydney), N.S.W.; South Africa, Springs. Representatives Throughout the World.

Production turning at 1/2 the cost!

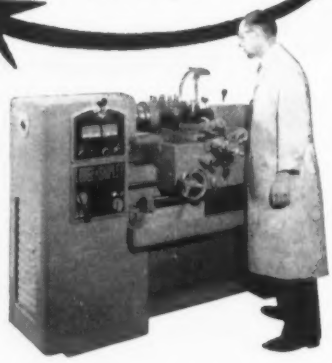
Lodge & Shipley 10″ HI-TURN Production Lathe does job of really big lathe

...and completely outperforms any other 10″ lathe!

BIG in power and production . . . BIG in speed, in rugged construction and accuracy, the Lodge & Shipley 10″ HI-TURN Production Lathe costs only ½ the price of a good 13″ lathe used for comparable work. Here are a few of the many features that put the 10″ HI-TURN in the big lathe, big value class and put it 'way ahead of *any* 10″ lathe:

FEATURE	Lodge & Shipley 10″ HI-TURN	Lathe B	Lathe C
HEADSTOCK			
Full 5 horsepower	yes		
200 to 3000 r.p.m.	yes		
All spur gear drive	yes		
Swing over bed	13¼″		
Spindle speeds	9		
BED			
Width of bed	11⅜″		
Depth of bed	11⅝″		
Hardened, ground, replaceable bedways	yes		
QUICK CHANGE GEAR BOX			
Number of quick change feeds	9		
Range of Feeds, thous. per rev.	1.5 to 24		
CARRIAGE			
Carriage length	19⅛″		
Carriage bridge width	5⅞″		
Cross slide travel	6¾″		
Flame-hardened and ground cross slide ways	yes		
TAILSTOCK			
Tailstock spindle diameter	2⅛″		
Tailstock spindle travel	4½″		
MISCELLANEOUS			
Size of lathe tool	¾″ x ¾″		
Net weight, base machine	3400 lbs.		
Template type length stops	yes		

You make the comparison with any 10″ lathe



Compare the Lodge & Shipley 10″ HI-TURN Production Lathe with *any other* 10″ lathe . . . even with 13″ lathes. If you don't need additional thread chasing facilities, it's the lathe for you!

Get complete details now. Write: The Lodge & Shipley Co., 3055 Colerain Ave., Cincinnati 25, Ohio.

Your Lodge-ical Choice for low-cost high-production

Lodge & Shipley

HOW TO LAND A PRIZE CATCH

If you're casting about for ways to save money and increase your production, then you'll land a prize catch when you hook-on to CIMCOOL*—the radically new and different cutting fluid. Here are just three reasons why you'll want to net CIMCOOL Concentrate:

- **CIMCOOL LOWERS COSTS** because it's longer lasting in machines. Thus, it reduces downtime and cuts labor costs for cleaning and changing.
- **CIMCOOL DOES A BETTER JOB** because of its chemical lubricity. It permits faster speeds and feeds, for it combines friction reduction and cooling capacity in a degree never before attained by old-fashioned coolants.
- **CIMCOOL IS CLEAN,** doesn't soil clothing or hands. It contains no skin irritants. It leaves no slippery film on shoes, floors, machine or work. It can't smoke, can't burn, and virtually eliminates rancidity and foul odors.

So, cast a line in the direction of your CIMCOOL Distributor. He'll give you complete information on CIMCOOL Concentrate— and the entire family of CIMCOOL Cutting Fluids. Or contact us direct. We'll have one of our Cincinnati Milling-trained machinists call on you—without cost or obligation. Write, wire or telephone Sales Manager, Cincinnati Milling Products Division, Cincinnati 9, Ohio.

CIMCOOL CUTTING FLUIDS

CIMCOOL **Concentrate**—The famous pink fluid which still covers 85% of all metal cutting jobs. Effective, economical and clean.

CIMCOOL **Tapping Compound**—Permits the use of highest tapping speeds and increases tap life amazingly.

CIMPLUS The transparent grinding fluid with exceptional rust control. Also used for machining cast iron and as a water conditioner with CIMCOOL Concentrate.

CIMCUT **Concentrates** — For jobs requiring oil-base cutting fluids. Added to mineral oils, they give economical mixes for higher speeds and feeds.

CIMCOOL **Bactericide** — The most effective agent yet developed to overcome rancidity and foul odors.

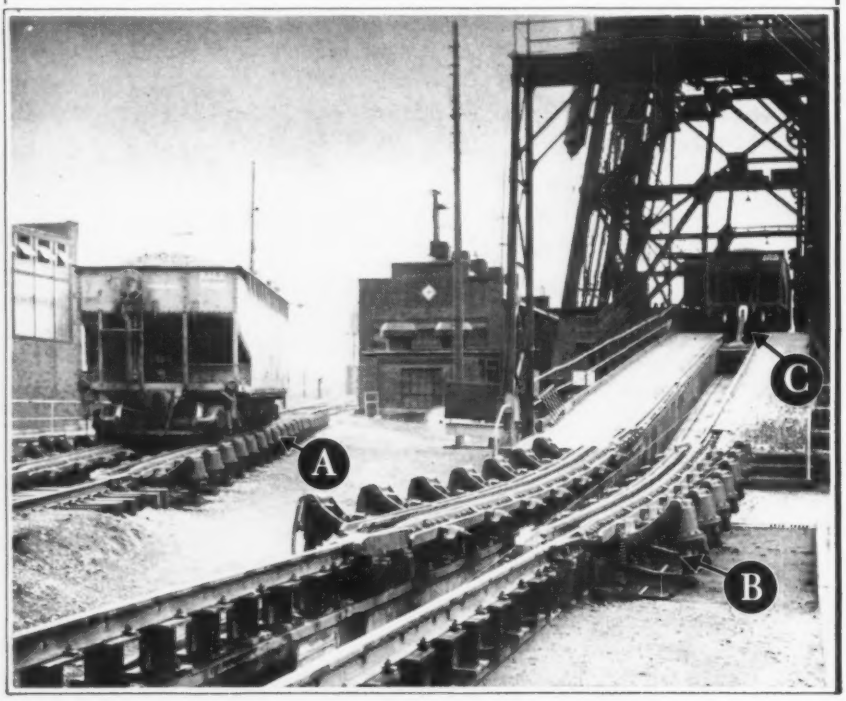
CIMCOOL **Machine Cleaner** — The two-phase non-corrosive cleaner that removes grit, dirt, slime and oil.

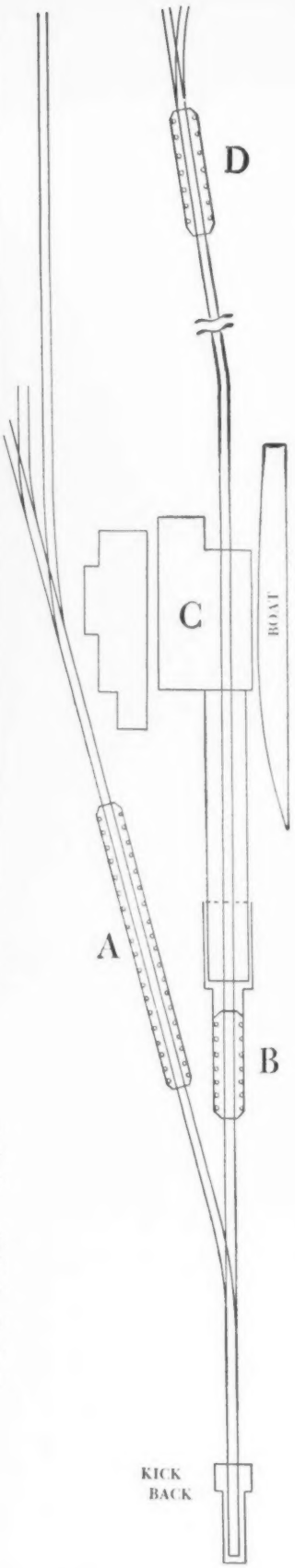
*Trade Mark Reg. U.S. Pat. Off.

CIMCOOL Cutting Fluids *for 100% of all metal cutting jobs*

PRODUCTION-PROVED PRODUCTS OF THE CINCINNATI MILLING MACHINE CO.

FAST AND EFFICIENT MATERIALS HANDLING—Loaded coal car rolls down the incline on the left at about 15 miles per hour. Its speed is reduced automatically in car retarder (A) so that it rolls up a "kick back" at just the right speed to send it back to retarder (B) where it is stopped automatically. A "barney" then pushes the car up the slope to the car dumper (C) where coal is unloaded directly into the ship. The next full car pushes the empty car off the dumper. It rolls down through retarder (D) to the proper track. All this is done by push-button control.





Automation with UNION CAR RETARDERS cuts costs on coal-loading dock

Forty carloads of coal an hour can be loaded on shipboard with this coal-handling system at a Lake Erie coal dock at Conneaut, Ohio.

This job formerly required a crew of men riding the cars and working the hand brakes—a hazardous occupation. Insurance rates were high and frequently men had to wait for the next ship to be loaded.

Now the work is handled quickly and safely by a push-button system using UNION Electro-Pneumatic Car Retarders. Costs have been greatly reduced and hazards eliminated.

If you have a materials-handling situation involving many carloads of coal, ore or other products, let us show you what can be done with automatic car-retarder systems to increase efficiency and reduce costs. Write for complete information.

UNION SWITCH & SIGNAL
DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY
SWISSVALE, PENNSYLVANIA

NEW YORK ..... CHICAGO ..... PITTSBURGH ..... ST. LOUIS ..... SAN FRANCISCO

New Design Trends for

Harvey Aluminum Extrusions

To any experienced engineer or designer, aluminum extrusions are a common commodity. You don't have to tell him that extrusions offer such advantages as ease of fabrication, design flexibility, etc. He knows that. What he wants to know now are the newest advances made possible by the extrusion process.

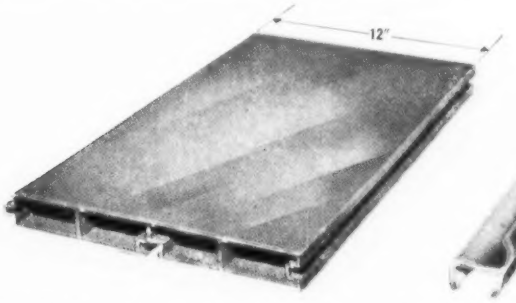
Potential for new configurations and applications

Typical new applications for Harvey Aluminum Extrusions are illustrated below. The design possibilities for aluminum extrusions are now practically limitless. Large heavy press sections; unusually complex shapes; wide, integrally stiffened skin panels; solid, hollow, and stepped extrusions; and extra long thin sections can be obtained from Harvey in all aluminum alloys. Heat-treated shapes can be produced in lengths up to 80 feet, weighing as much as 2,500 pounds. The maximum circumscribing circle diameter practical is 25½ inches. For functional, structural, or decorative applications demanding custom design plus light weight, corrosion resistance, high strength, and a naturally attractive finish, Harvey Aluminum Extrusions are first choice. And remember, Harvey is traditional for high quality and service.

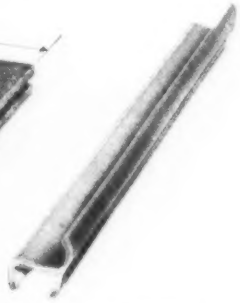
Harvey Aluminum leads in extrusions

Harvey's completely integrated facilities include a large complement of extrusion presses ranging in size from 1400 tons to 12,000 tons, stretch-straighteners up to 3,000,000 pounds capacity for lengths up to 105 feet, and the newest supporting and finishing equipment.

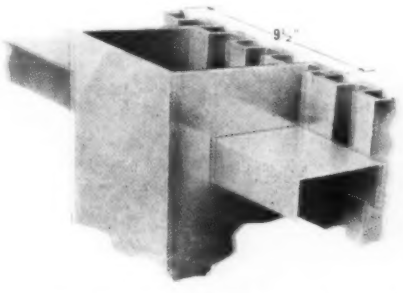
If you have a problem with extrusions, thoroughly qualified Harvey specialists are always ready to help you improve your product. Write to Harvey Aluminum Sales, Inc., Torrance, California, or contact the nearest sales office listed under "Aluminum" in your classified telephone directory.



PANEL for highway signs. Extruded aluminum shape offers maximum strength and economy. Design combines several functions within a single shape. Light weight eases erection. Aluminum's natural, attractive finish and resistance to corrosion minimizes maintenance.



AUTOMOTIVE WINDOW FRAME combines utility with natural brilliance, eliminating costly plating operations. Rust is never a problem. This extruded shape typifies the trend in using aluminum for both decorative and functional applications in the automotive industry.



STRUCTURAL ASSEMBLY of extruded shapes is utilized for large span hanger and warehouse doors, building walls, and other components. Both structure and enclosure are formed by combining two aluminum extrusions. Interlocking design speeds and simplifies erection.

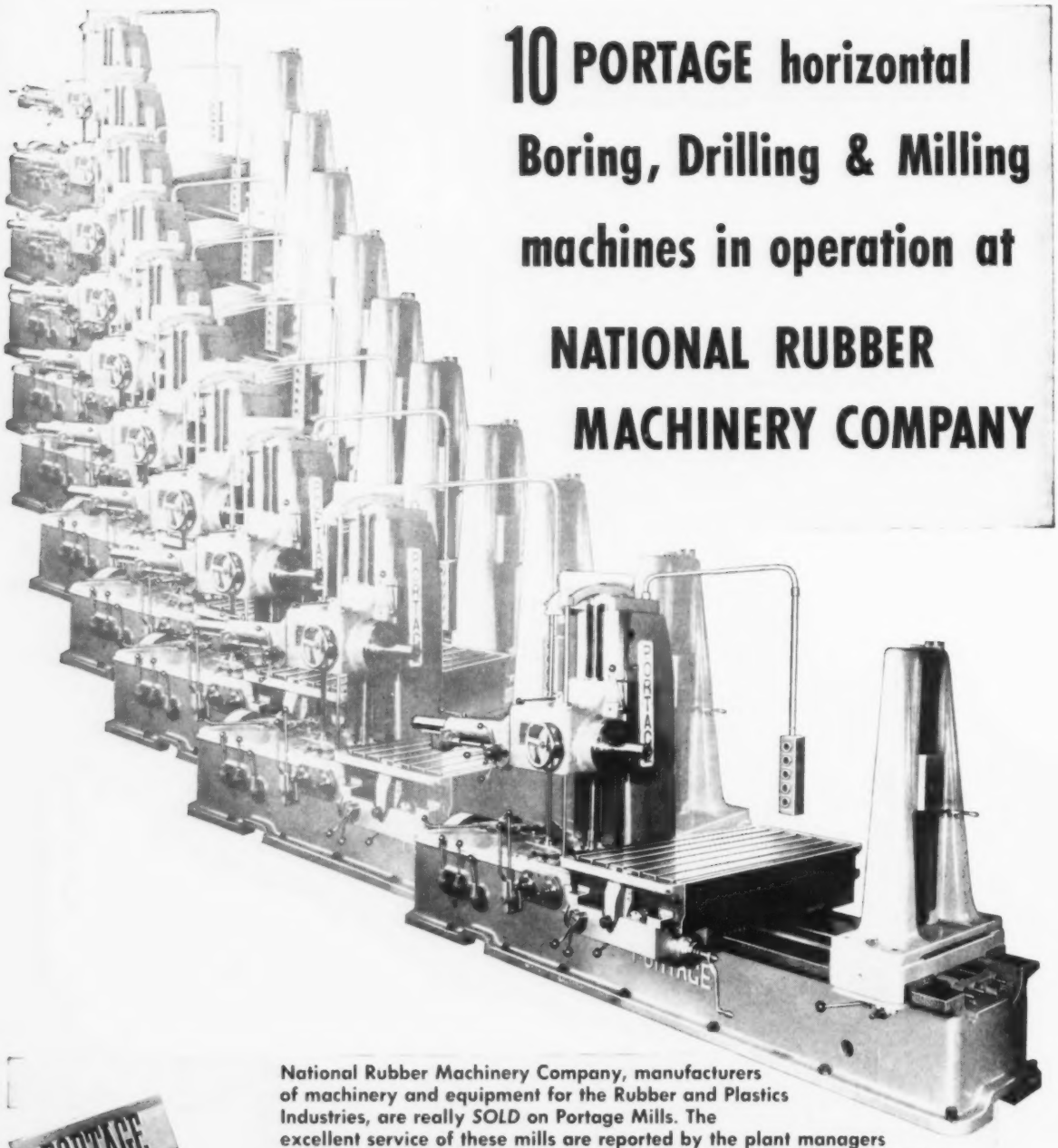
Making the most of aluminum . . . for everyone

HARVEY ALUMINUM SALES INC., TORRANCE, CALIFORNIA

HARVEY Aluminum

Harvey is a leading independent producer of quality aluminum products in all alloys and sizes: Rod and bar, pipe, tube, hollow sections, press forgings, forging stock, impact extrusions, structurals, special shapes, extrusions, screw machine products and other aluminum products. Harvey is also producing similar items in titanium and steel.

10 PORTAGE horizontal Boring, Drilling & Milling machines in operation at NATIONAL RUBBER MACHINERY COMPANY



National Rubber Machinery Company, manufacturers of machinery and equipment for the Rubber and Plastics Industries, are really *SOLD* on Portage Mills. The excellent service of these mills are reported by the plant managers at Columbiana, Ohio and the Akron Division plant. This large installation certainly represents a vote of confidence for the performance of Portage Mills . . . and speaking of confidence . . . many leading manufacturers have come to realize that the ruggedness, versatility and low maintenance cost of Portage Mills makes them the best buy . . . and remember . . . their initial capital investment cost is less, without the sacrifice of quality. Write for complete information . . . TODAY.

THE Portage MACHINE CO.

1035 Sweitzer Avenue • Akron 11, Ohio

Representatives in Principal Cities

BUILDERS OF PRECISION MACHINE TOOLS, SPECIAL AND PRODUCTION MACHINERY SINCE 1916

IF THE TRUTH MUST BE TOLD

. . . by a spring

This spring, the dependable heart of a leading make of air pressure gauge, must "tell the truth" years on end. But at first there were tough problems . . . and eventually the manufacturer turned to the Worcester Wire Works Division of National-Standard for a *special spring wire* that would solve them . . .

Look how the spring has a double pitch to properly take and indicate a wide range of pressure loads. Obviously, extreme accuracy, exceptional uniformity, and exact behavior are absolute musts. Rejects were running up to 50 per cent!

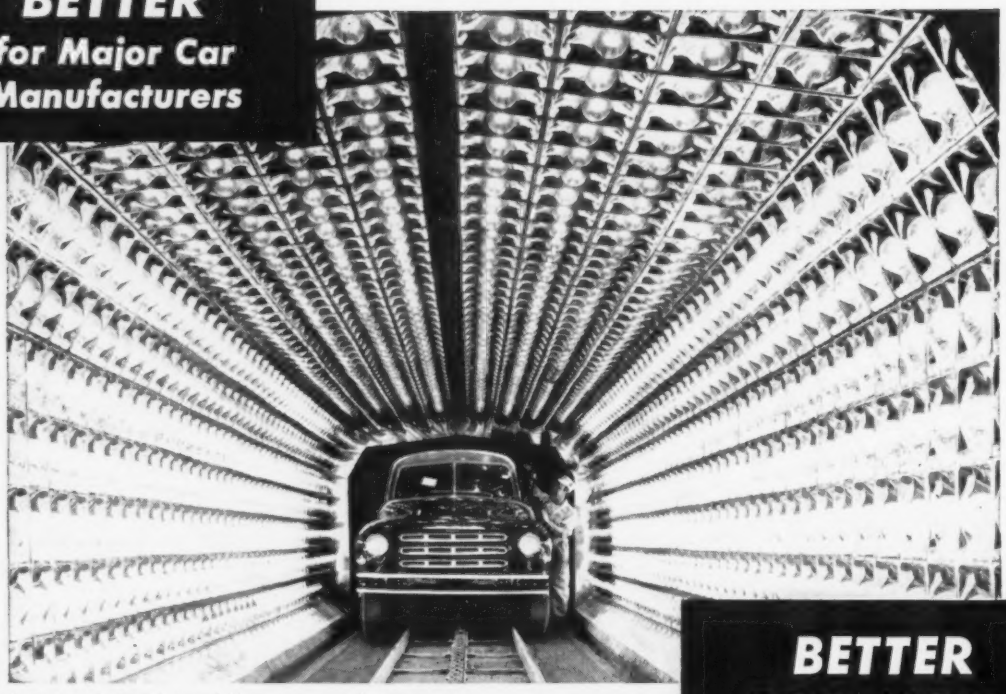
That is, until Worcester Wire Works studied the requirements, did developmental work, came up with a specially prepared spring wire and so solved the problems!

Like the other National-Standard divisions, Worcester Wire Works features unusual service that helps other manufacturers turn out better products at lower cost. Try us. You'll see.

NATIONAL NS NATIONAL-STANDARD Company **STANDARD**

DIVISIONS: NATIONAL-STANDARD, Niles, Mich.; fine wire, stainless, music spring and plated wires • WORCESTER WIRE WORKS, Worcester, Mass.; music spring, stainless and plated wires, high and low carbon specialties
WAGNER LITHO MACHINERY, Secaucus, N. J.; metal decorating equipment • ATHENIA STEEL, Clifton, N. J.; flat, high carbon spring steels • REYNOLDS WIRE, Dixon, Ill.; industrial wire cloth

BETTER
for Major Car Manufacturers



Fostoria Industrial Infrared Ovens are used by every major car manufacturer in more than 300 automotive installations.

BETTER FOR YOU!

In the automotive industry

MILES OF OVENS . . . BY FOSTORIA

give top-quality results . . . *at lowest cost!*

Don't take *our* word for it—look what's been happening in the highly competitive automotive industry. Today, the customer list for FOSTORIA RADIANT OVENS reads like a "Who's Who" among automotive manufacturers. The list of FOSTORIA users includes *all* of the major car and truck manufacturers in this country. It also includes many automotive component part manufacturers and assembly plants overseas. These companies are ordering and *reordering* FOSTORIA Ovens . . . and have been for years! The reason behind FOSTORIA's position of leadership is clear. FOSTORIA is the world's oldest and largest manufacturer of industrial infrared ovens—with unrivalled application "know-how" and experience in engineering *all three major types* of industrial infrared equipment, from components to complete ovens—Quartz Lamp, Radiant Rod and Conventional Infrared Lamp. An experienced FOSTORIA sales engineer is ready to help *you* achieve important savings with FOSTORIA RADIANT OVENS too.

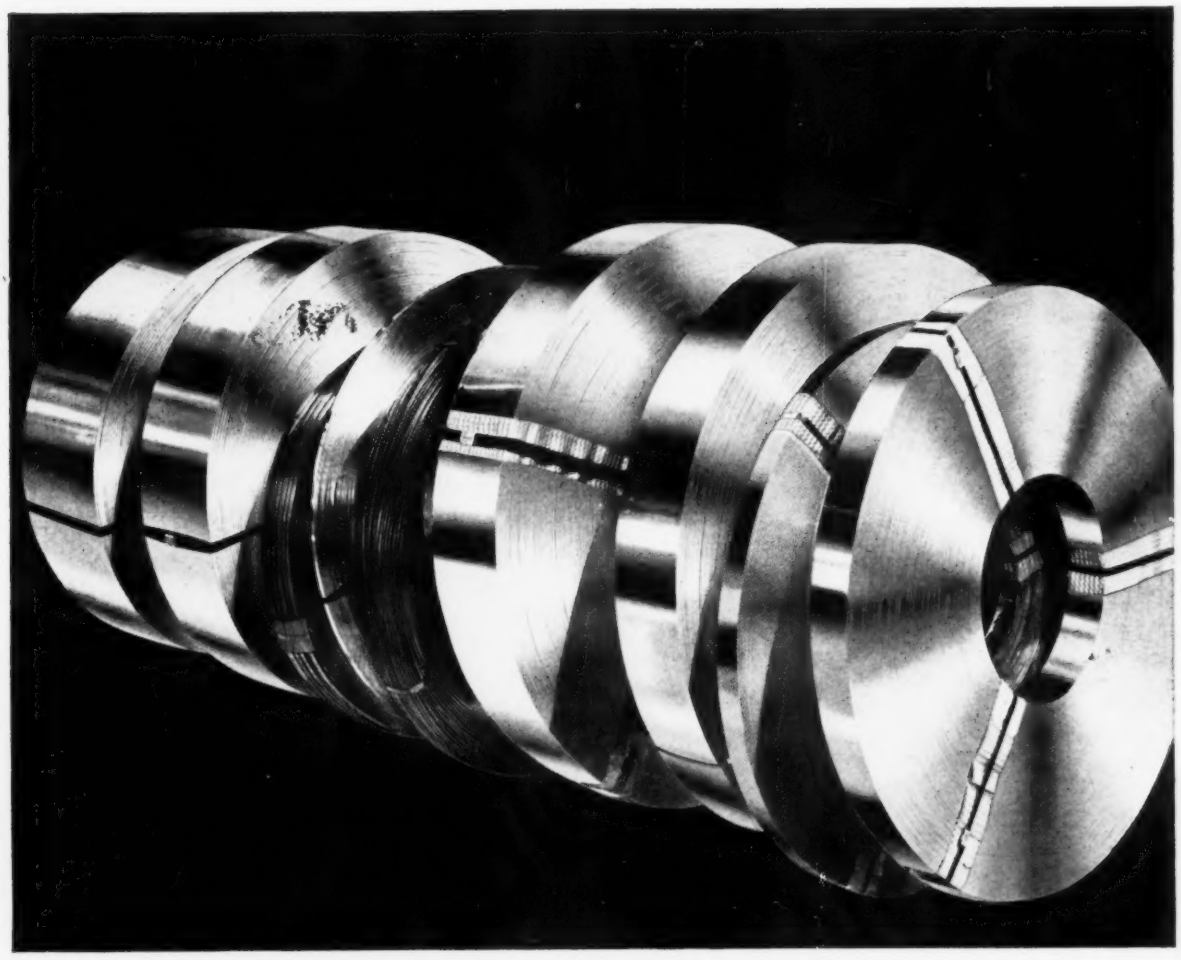
Call him today and take advantage of these specialized services. There's no obligation.

Write for a free copy of "Applications Unlimited," a fact-filled booklet of cost-saving information on Radiant heating.

INFRA-RED fostoria SYSTEM

5810

THE FOSTORIA PRESSED STEEL CORPORATION, Dept. 624, Fostoria, Ohio



it's CRUCIBLE for the widest assortment of cold rolled specialty steels

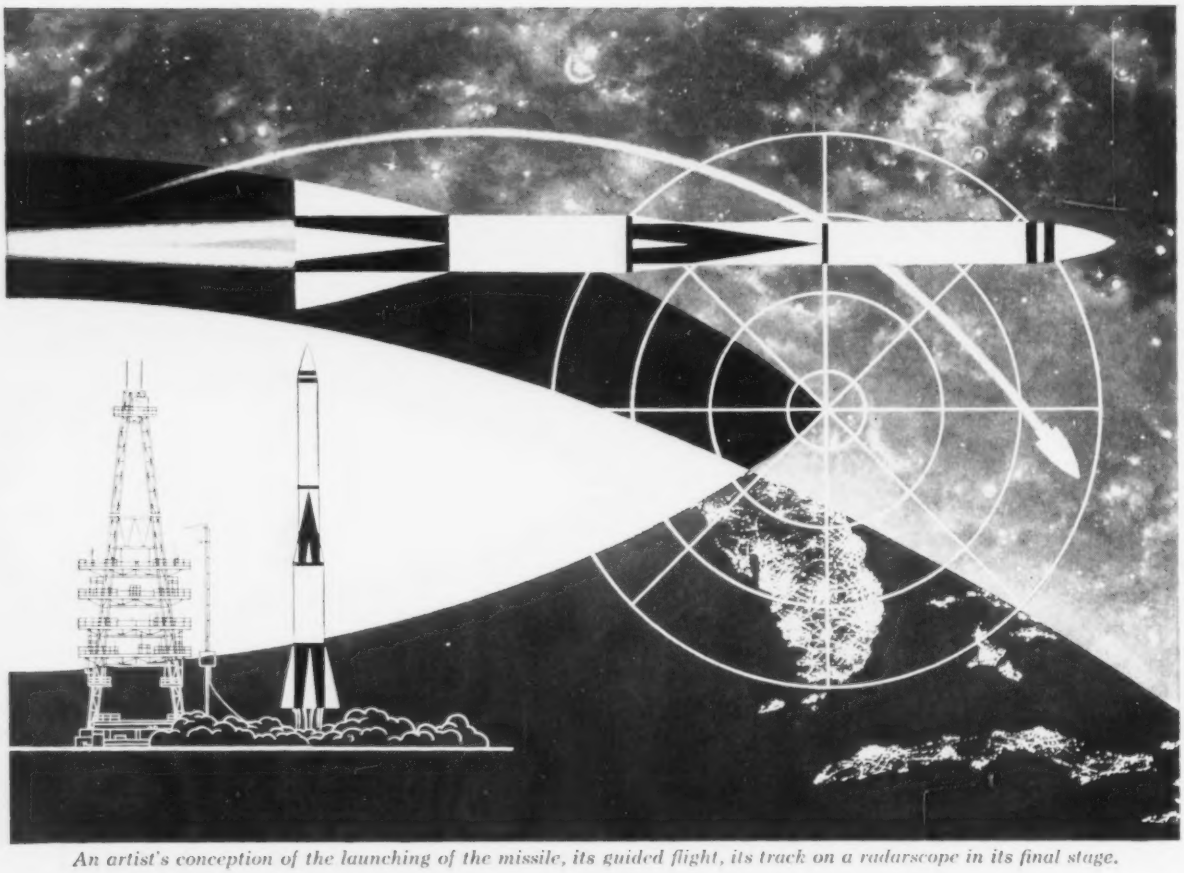
Crucible has the largest assortment of cold rolled specialty steels you'll find anywhere. And delivery is dependable—in the size, grade, gauge, or analysis you want.

What's more, Crucible's steelmaking experience—its improved mill facilities—combine to bring you cold rolled steels of optimum uniformity . . . finer finish . . . better edges . . . flatter strip.

No need to shop around—call Crucible for carbon spring steel, alloy strip steel, or *any* ferrous analysis that can be cold rolled. For more information, write now for your copy of the 32-page booklet, "Cold Rolled Specialty Steels". *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America



An artist's conception of the launching of the missile, its guided flight, its track on a radarscope in its final stage.

Guiding a missile? Or a business?

For either one, you need COPPER!

You see a good many pictures these days of guided missiles. New *types* of missile are appearing.

Not one is launched without COPPER!

The scientists who design these delicate, electronic, lethal weapons . . . the plants that assemble them . . . the technicians who launch them . . . these may perhaps make no mention of the copper in them. But every time you see a guided missile . . . on TV, in a newsreel, in magazine and newspaper articles . . . you can say to yourself:

"*Copper* helped make this possible!"

For copper is essential to electronics and to the progress that is being made by electronics in our nation's defense, including guided missiles.

Copper's highly efficient electrical conductivity . . . copper's resistance to corrosion . . . copper's *integrity* . . . are some of the characteristics that make copper indispensable in guided missiles, *and invaluable in YOUR product!*

You can *trust* copper even when it's out of your sight. Working away, deep in some complicated automatic mechanism or in the simple thermostat on the wall of your home, copper *performs without fail.* And in your business, too, copper never fails to safeguard product-quality.

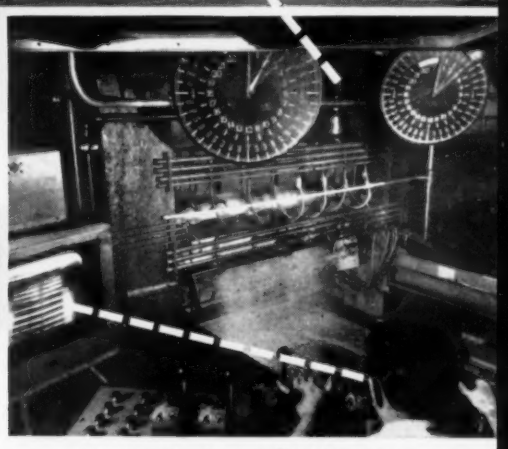
Make it your business to use copper in your business. Remember, the Copper Industry has plans to make sure you get enough copper for your needs . . . year after year after year!

COPPER & BRASS
RESEARCH ASSOCIATION

420 Lexington Avenue, New York 17

COPPER OR ITS ALLOYS PROVIDE THESE ADVANTAGES: Best conductor of electricity commercially available • Does not rust . . . high corrosion resistance • Best heat transfer agent of all commercial metals • Easy to machine, form, draw, stamp, polish, plate, etc. • Welds readily . . . excellent for soldering and brazing

This combination hot and cold mill for plate, sheet and tapered sheet at Reynolds Metals' McCook plant, near Chicago, Ill., was designed and built by Loewy-Hydropress.



Control station features TV observation.

AT REYNOLDS METALS . . .

Country's largest combination breakdown and plate rolling mill produces finished aluminum plate down to .032 in. thickness

Designed and built by Loewy-Hydropress, this Navy rolling mill—largest installation of its kind in America—permits, in addition to the rolling of thick plate, the hot and cold rolling of aluminum alloy tapered plate and sheet so vital to supersonic speed aircraft.

Cast or prerolled solid ingots or prerolled clad ingots are fed into the four-high mill, which can produce aluminum plate *up to 135 in. wide*. Automatic electronic controls and cold rolling under tension allow sheet and plate to be rolled to precision tapered thicknesses down to .032 in. (cold), with a maximum taper of .25 in. per ft. and a maximum length of 480 in. For hot taper rolling, this length can be considerably increased. Here is evidence of Loewy's creativity in rolling mill engineering.

To individual production requirements, Loewy-Hydropress designs, builds and installs hot and cold rolling mills for ferrous and nonferrous metals; continuous merchant and wire-rod mills; skelp mills; two-high and three-high blooming mills; high speed foil mills; continuous billet and sheet-bar mills; strip, slabbing, plate, structural, rail mills; and special mills. For further information, write us today, Dept. A-6.

Loewy-Hydropress Division

BALDWIN · LIMA · HAMILTON

111 FIFTH AVENUE, NEW YORK 3, N.Y. Rolling mills • Hydraulic machinery • Industrial engineering

BALDWIN BLH LIMA-HAMILTON

Something new... made better by aluminum

Aluminum "sail" of atomic sub breaks water as ship surfaces. "Sail" is the protective sheathing around superstructure and controls.

New alloys make aluminum a seagoing metal

The new atom-powered submarines "Nautilus" and "Seawolf" offer dramatic proof that aluminum can be just as much at home in salt water as on dry land. Both of these modern vessels are equipped with streamlined aluminum sheathing above decks to reduce topside weight. Other interesting marine uses of aluminum include a speedy new Canadian subchaser, the superstructure of passenger ships like the new Norwegian liner *Bergensfjord* and the S. S. United States and hundreds of different types of pleasure craft.

Key to the use of aluminum in many of these marine applications is the development of special alloys and welding techniques by Aluminium Limited research. With these problems solved, aluminum fabricators are sure to find larger markets in the shipbuilding field.

Through research, new and different uses for aluminum are broadening fabricators' markets everywhere. To help assure a dependable supply of primary metal for independent fabricators, Aluminium Limited is investing $3,000,000 a week in additional production facilities.

Supplying U.S. industries with primary aluminum from Canada

Aluminium Limited Sales, Inc.

630 FIFTH AVENUE • NEW YORK 20, N. Y.

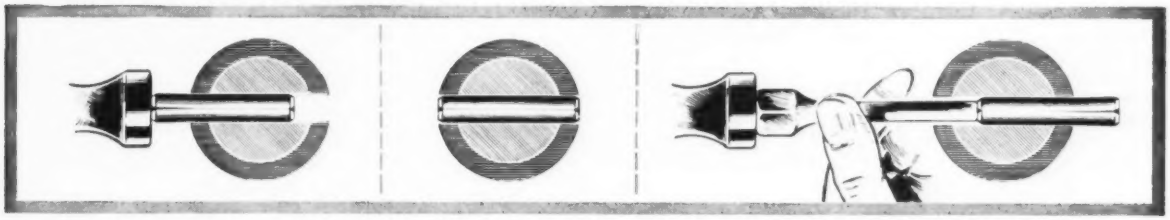
CLEVELAND • CHICAGO • DETROIT • LOS ANGELES • BUENOS AIRES • SÃO PAULO

what makes this fastener DIFFERENT?

Several things. Rollpin® is a slotted, chamfered, cylindrical spring pin which drives easily into a hole drilled to normal production standards. It locks securely in place, yet can be drifted out and reused whenever necessary. This eliminates special machining, tapping, and the need for hole reaming or precision tolerances. Rollpin replaces taper pins, straight pins and set screws; for many applications it will serve as a rivet, dowel, hinge pin, cotter pin or stop pin.

And here's another difference that makes Rollpin the quality fastener in the field: ESNA's quality control builds consistent strength and performance into every Rollpin. Rollpin is uniform as to shear strength, dimensions, hardness, and insertion and removal forces

HOW YOU INSERT IT



Drives easily by hammer, arbor press, or air cylinder and can be readily adapted to an automatic hopper feed. Requires only a standard hole, drilled to normal production-line tolerances.

Locks securely in place without using a secondary locking device; won't loosen despite impact loading, stress reversals, or severe vibration.

Removes readily with a drift pin without damage to pin or hole, can be used again and again in original hole.

HOW YOU SAVE

You pay less for Rollpins than for most tapered, notched, grooved or dowel pins. Installation costs are substantially less than for any fastener requiring a precision fit or secondary locking operations.

Because of their tubular shape, Rollpins are lighter than solid pins. Production maintenance is reduced with Rollpins: they do not loosen and because of their spring action they tend to conform to the drilled hole in which they're inserted, without material hole wear, eliminating the necessity of re-drilling or using oversize pins.

MATERIALS AND SIZES

Standard Rollpins are made from carbon steel and Type 420 corrosion resistant steel. They're also available in beryllium copper for applications requiring exceptional resistance to corrosive attack, good electrical, anti-magnetic, and non-sparking properties. Stock sizes range from .062" to .500" in carbon and stainless steels.

ROLLPIN®

ESNA

ELASTIC STOP NUT CORPORATION OF AMERICA

R40-677, 2330 Vauxhall Road, Union, New Jersey

Please send me the following free fastening information:

☐ Rollpin Bulletin
☐ Elastic Stop nut Bulletin
☐ Here is a drawing of our product. What self-locking fastener would you suggest?

Name _____ Title _____

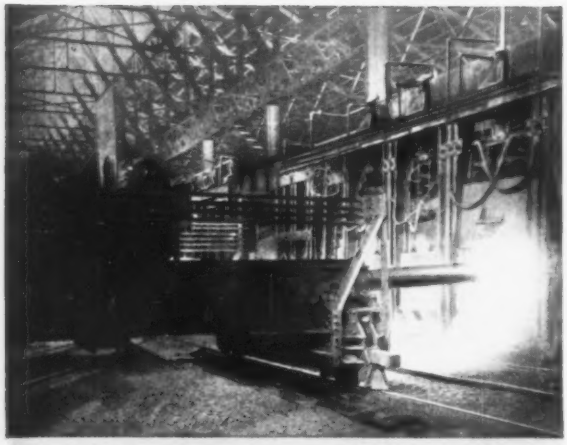
Firm _____

Street _____

City _____ Zone _____ State _____

CLAYMONT ALLOY STEEL PLATES...

. . . are always uniform . . . always top-quality. That's because *three* important things go into every one of these plates—fine steel . . . carefully selected alloying elements . . . and constant attention to rigid quality controls throughout every stage of production.



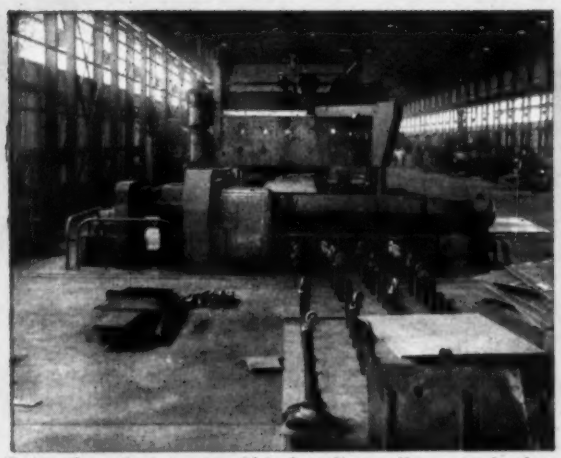
When the steel comes from the open hearth, it's free of all harmful impurities. Desirable alloying elements are added by skilled technicians while the steel is in the ladle—by men who've made alloying steel their life's work.

Following alloying, Claymont Alloy Steel ingots are stripped from molds and placed in these modern soaking pits. Uniform heat soaks the entire ingot to the proper temperature for rolling into plate.

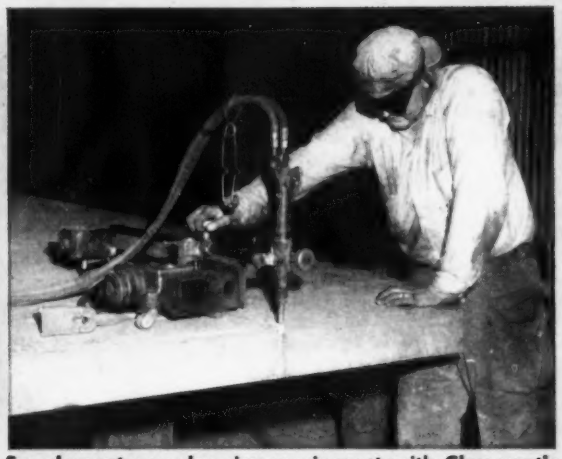
Plus

CLAYMONT'S FABRICATION SERVICE...

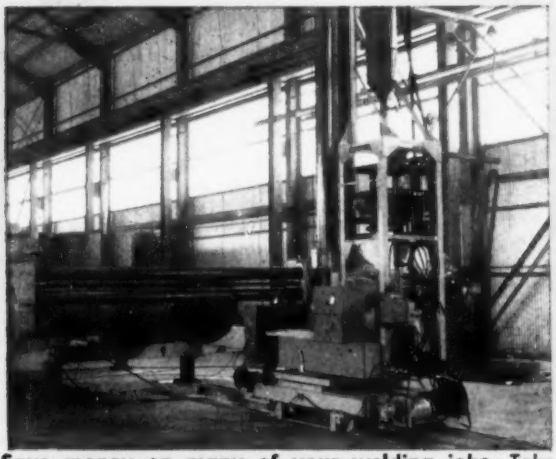
. . . enables you to take on more jobs than you've ever been able to handle before. For Claymont maintains a 100,000 sq. ft. machine and fabricating shop right in its steel mill. This shop specializes in performing a wide variety of operations for fabricators—rolling . . . pressing . . . drilling . . . boring . . . milling . . . grinding . . . cutting . . . punching . . . welding . . . shearing. As a result, you can in effect supplement your own equipment with Claymont's extensive fabrication facilities. *And* you avoid paying freight and handling charges on that part of your plate that would only become scrap.



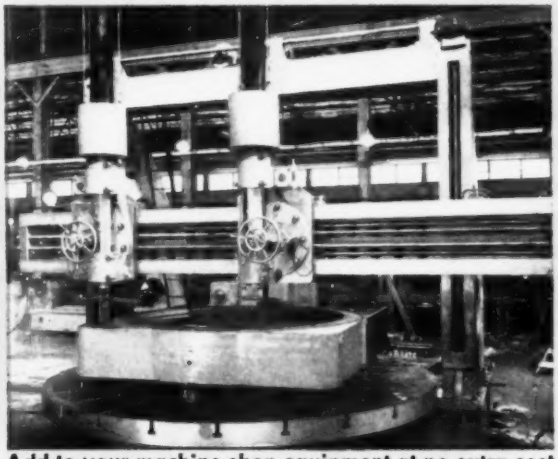
Enjoy the advantages of big bending rolls, press brakes and other heavy equipment. Just let Claymont perform some of your heavy-duty operations before your Claymont Alloy Plate ever leaves the mill.



Supplement your burning equipment with Claymont's radiagraphs. You can get steel circle parts . . . without costly scrap losses . . . by letting Claymont's Fabrication service do the job for you.



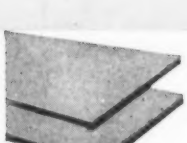
Save money on many of your welding jobs. Take advantage of this automatic welding machine. With such equipment, Claymont specializes in uniform welding.



Add to your machine shop equipment at no extra cost. For instance, you gain all of the advantages of this modern 16-foot boring mill . . . at a price that'll help you show a tidy profit . . . if you're one of Claymont's Fabrication service customers.

For full details, write Wickwire Spencer Steel Division, The Colorado Fuel and Iron Corporation, P. O. Box 1951, Wilmington, Delaware.

OTHER CLAYMONT PRODUCTS



Steel Plates
High Strength Low Alloy
Stainless-Clad · Nickel Plated

Flanged and Dished Heads

Manhole Fittings and Covers

Large Diameter Welded Steel Pipe

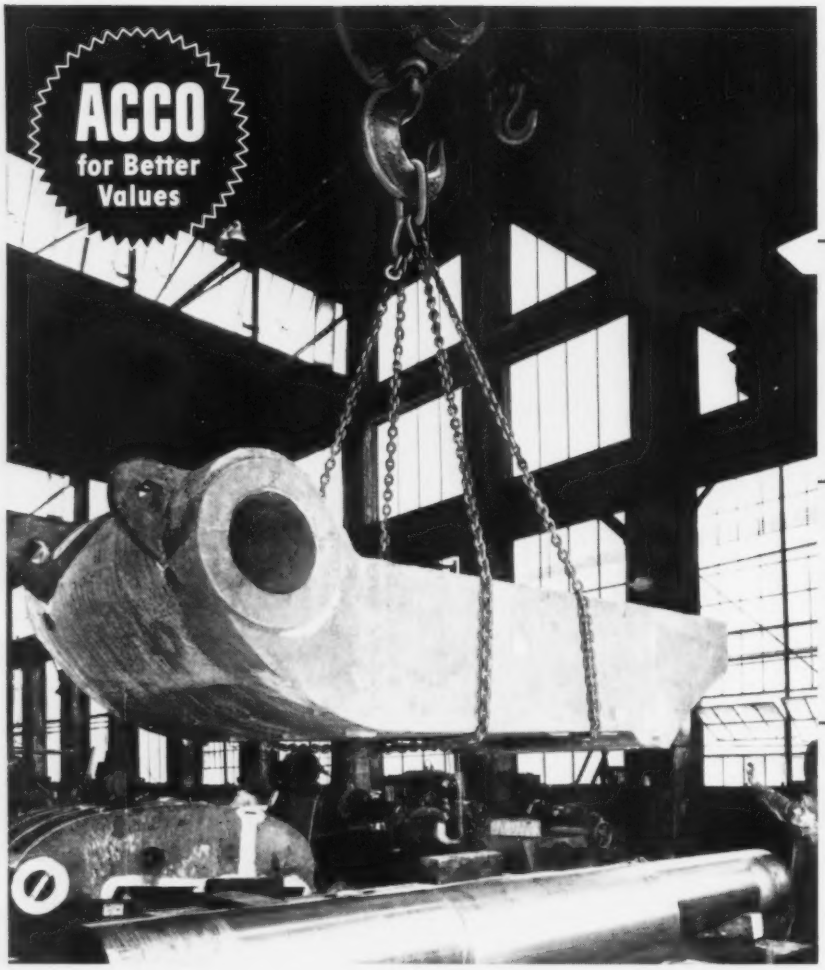
CF&I *Claymont Steel Products*

Products of Wickwire Spencer Steel Division · The Colorado Fuel and Iron Corporation

Albuquerque · Amarillo · Atlanta · Billings · Boise · Boston · Buffalo · Butte · Casper · Chicago · Denver · Detroit · El Paso · Ft. Worth
Houston · Lincoln · Los Angeles · New Orleans · New York · Oakland · Odessa · Oklahoma City · Philadelphia · Phoenix · Portland (Ore.)
Pueblo · Salt Lake City · San Francisco · Seattle · Spokane · Tulsa · Wichita

CF&I OFFICES IN CANADA: Montreal · Toronto CANADIAN REPRESENTATIVES AT: Calgary · Edmonton · Vancouver · Winnipeg

4334



Accoloy X-weld 125 Chain
Pat. No. 2763768

New Shaped Master Link

ACCO Registration Ring

Registration Certificate

Big, costly loads are safe with Acco Registered® Sling Chains

• Pictured above is a huge, 35,000-pound casting being lifted *easily and safely* by a 4-leg ACCO *Registered* Sling Chain. Directly beneath the load is a highly polished and machined crank shaft worth many thousands of dollars.

Imagine the cost in lost labor and materials, should the sling chain fail! But it won't fail—for this ACCO *Registered* Sling Chain and all its components have the inbuilt strength needed to handle the job with complete safety!

When you buy an ACCO *Registered* Sling Chain, you get these four exclusive "plus values" which *add materially to the worth, but not to the cost,* of the sling:

1 • **Accoloy X-weld 125 Chain**, for extra strength. This chain hangs straight . . . does not kink . . . has extra resistance to bending.

2 • **New Shaped Master Link**, uniquely shaped to withstand deformation under loads up to 18% greater than a round-section link can do.

3 • **ACCO Registration Ring**, serially numbered as evidence that the assembled sling has been factory proof-tested to twice its working load limit.

4 • **Registration Certificate**, signed by us, attesting to the field-tested design and proof-testing of the complete sling.

Remember, the best sling is one of your most economical material-handling tools. You'll find it good business to consult your ACCO *Registered* Sling Chain Distributor on all your sling needs; his counsel is available without obligation. If you don't know his name, write us at York, Pa.

WHAT "ACCO REGISTERED" MEANS

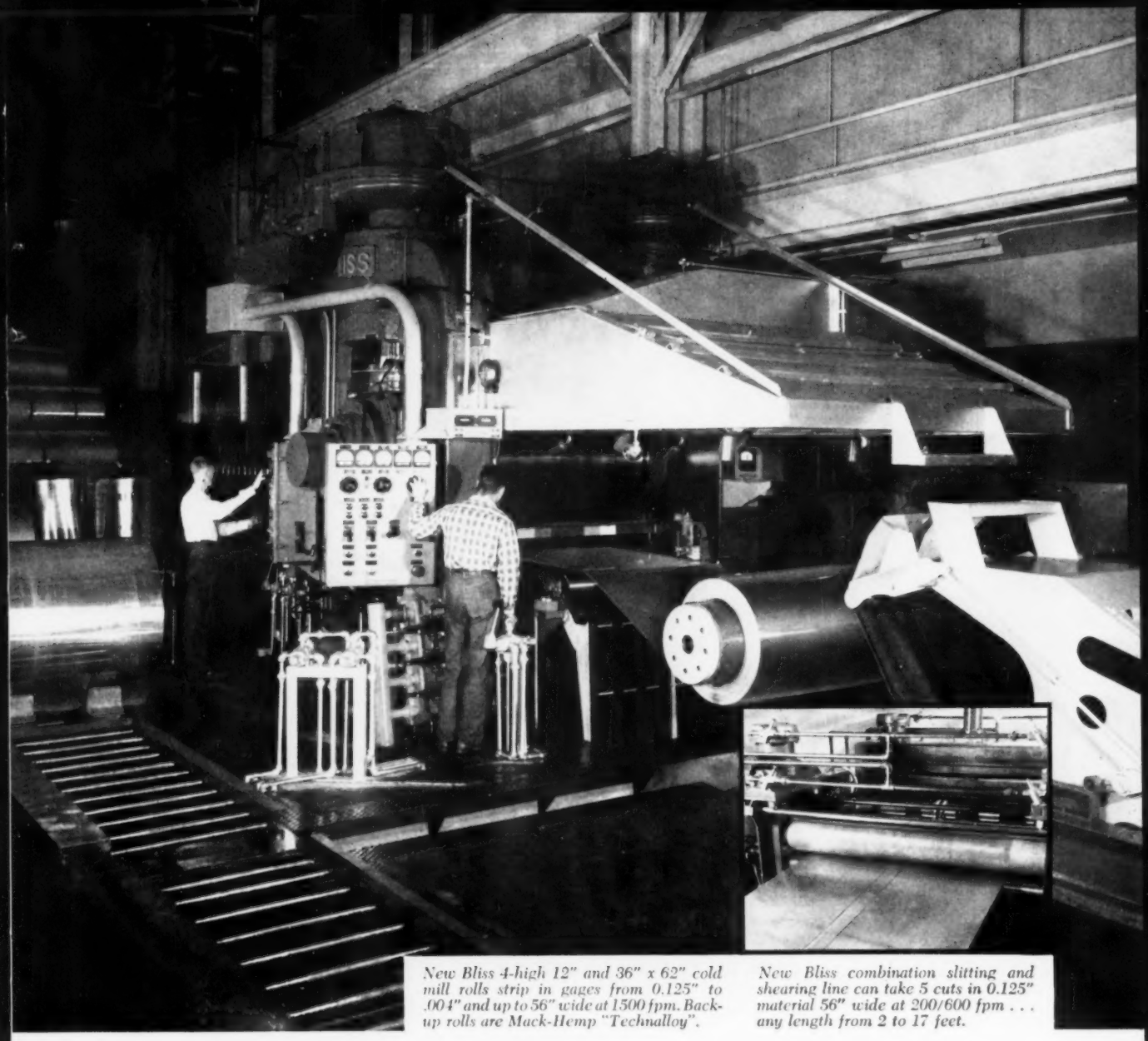
1 The best material
2 Unit safety factor (on bodies, rings, links, hooks)
3 Proof test of complete sling to twice the working load limit
4 Actual field service test of each design
5 Metal identification ring on each sling
6 Signed Registry Certificate with each sling

American Chain Division
AMERICAN CHAIN & CABLE
Bridgeport, Conn. • Factories: *York and *Braddock, Pa.

Sales Offices: *Atlanta, Boston, *Chicago, *Denver, Detroit, *Houston, *Los Angeles, *New York, Philadelphia, Pittsburgh, *Portland, Ore., *San Francisco

* *Indicates Warehouse Stocks*

ACCO
A·C
TRADE MARK



New Bliss 4-high 12" and 36" x 62" cold mill rolls strip in gages from 0.125" to .004" and up to 56" wide at 1500 fpm. Back-up rolls are Mack-Hemp "Technalloy".

New Bliss combination slitting and shearing line can take 5 cuts in 0.125" material 56" wide at 200/600 fpm . . . any length from 2 to 17 feet.

How to double rolling capacity—*FAST*

What can one new mill do? In the case of Sheet Aluminum Corporation, the answer is *plenty*. Here's what a new Bliss 4-high cold mill has done for this Jackson, Michigan, subsidiary of Mueller Brass Company:

- **More than doubled potential capacity,** from approximately 10,000,000 pounds of aluminum sheet and strip a year, to 25,000,000 pounds.
- **Increased the limit** on strip width from 24″ to 56″.
- **Simplified handling** by making it possible to roll much larger coils.

Of course, Sheet Aluminum had to make other installations to take full advantage of the new mill's capacity: a new continuous annealing furnace, a new Bliss slitting and shearing line, completely automatic coil handling equipment. But the fact remains that it's the mill that will do the heavy work.

Bliss' Rolling Mill Division engineers are expert in designing equipment that squeezes top production out of dollars invested. For other examples of their work, why not write today for your free copy of the 64-page Bliss Rolling Mill Brochure, Bulletin 40-A?

BLISS
SINCE 1857

100 years of making metal work for mankind

E. W. BLISS COMPANY, Rolling Mill Division, Salem, Ohio

Subsidiary: The Matteson Equipment Company, Inc., Poland, Ohio

Combines Speed and Quality in all positions . . . flat, vertical, overhead. For structural, pressure vessel, pipe and machinery fabrication.

Where dependability counts

9 out of 10 high-strength jobs rely on Fleetweld 5

Favorite E-6010 Electrode for welding mild steel in all positions

1.—*X-ray quality* on pipe and pressure vessel work

2.—*high strength* for structural, machinery and shipbuilding

3.—*deep penetration,* high physical properties

Approved for shipbuilding by Lloyds and American Bureau of Shipping. Universally accepted for code welding.

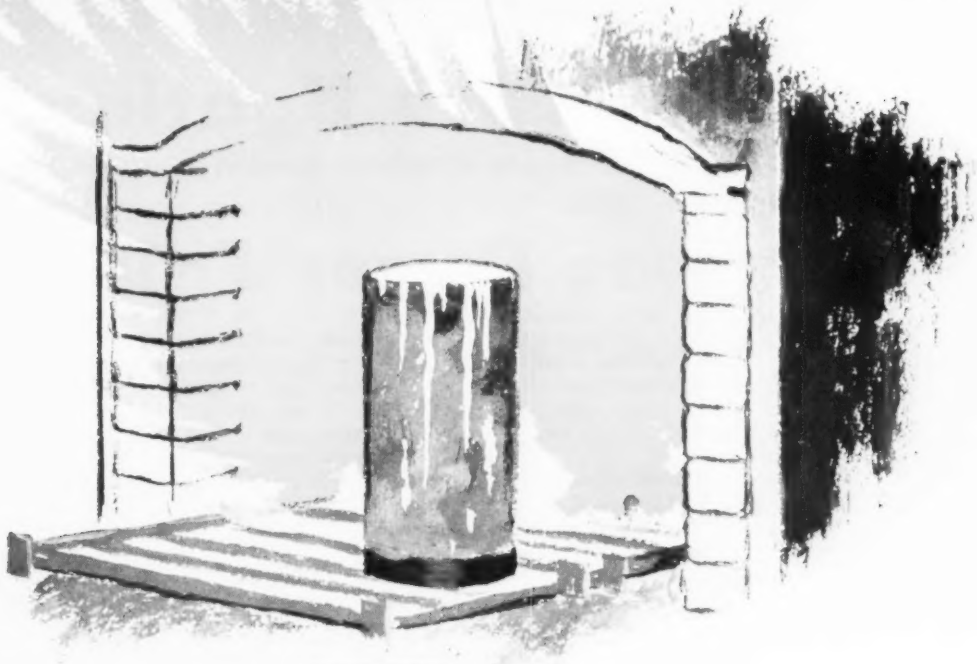
FABRICATORS!
Write for Mild Steel Weldirectory SB-1351 giving physical properties and procedures.

THE LINCOLN ELECTRIC COMPANY

Dept. 1532, Cleveland 17, Ohio

The World's Largest Manufacturer of Arc Welding Equipment

HAYNES Alloys solve the *tough* heat problems



...Entering "burn-out" furnace are investment-casting mold flasks made of MULTIMET alloy. Over 25,000 flasks of many shapes and sizes fabricated from 16-gauge sheet are in daily use.

2000 Hours in 1900-Deg. F furnace

Inside "burn-out" furnaces rows of investment-casting mold flasks reach temperatures as high as 1900 degrees F while under direct flame impingement. Flasks made of MULTIMET alloy operate under these severe oxidizing conditions for 2000 hours. They have survived repeated heating and cooling for 200 trips, each 8 to 10 hours, through the furnace without rupturing or losing their strength.

If you are seeking exceptional service against severe heat conditions, get the complete story on HAYNES alloys. Contact our nearest sales office or write for descriptive literature. Address HAYNES STELLITE COMPANY, Division of Union Carbide Corporation, General Offices and Works, Kokomo, Indiana.

HAYNES ALLOYS

HAYNES STELLITE COMPANY

Division of Union Carbide Corporation

UNION CARBIDE

"Haynes," "Multimet" and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

No Excessive Heating

New Rectifier Cooling System Prevents Heat Build-up and Damage

when ac Power Fails

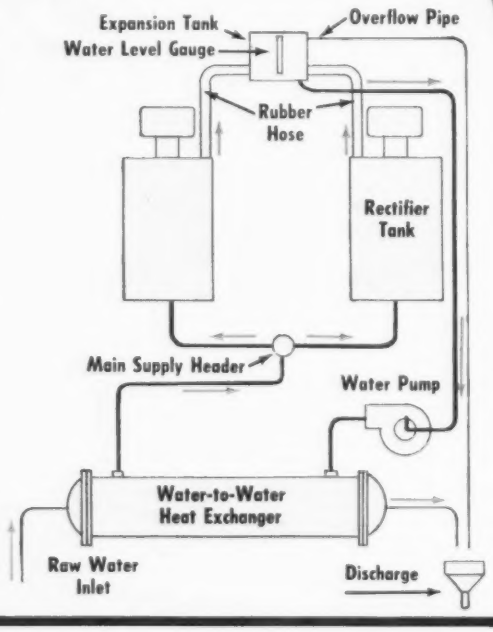
A SAFER, more effective cooling system in the Allis-Chalmers rectifier continues to circulate water *even when an ac power failure stops the water pump.* Heat and steam are dissipated before they can develop to the danger point.

The new system features an expansion tank that extends the full length of the rectifier frame with short vertical connections from each tube. With warm water continuing to flow freely upward, a thermo-siphoning action draws cooler water into the tubes. Build-up of excessive temperatures is prevented. Steam pockets are kept from forming. Subsequent water loss from the recirculating cooling system is minimized.

Successful operation in hundreds of installations is your assurance of the complete reliability of Allis-Chalmers mercury arc rectifiers. Contact your nearby A-C office or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wis.

How the System Works

Water is normally pumped through the water-to-water heat exchanger to the main supply header from where it circulates through rectifier tubes picking up heat. Hot water flows up through the short connections to expansion tank and back down to suction side of water pump.



ALLIS-CHALMERS
Mercury Arc Rectifiers

Factory-packaged units cut installation time and costs. Sealed tube rectifiers are supplied in completely enclosed or open types. Here is a typical, completely enclosed, 1000-kw, 250-volt rectifier for steel mill service.

ALLIS-CHALMERS

A-5425

Growth For Alkali Metals

Future of the alkali metals—especially lithium and sodium—looks good. Annual consumption of lithium is expected to be over 1 million lb by 1970. Important uses predicted: as a coolant for nuclear powerplants; as a catalyst for plastic and elastomer production. Sodium, now being consumed at the rate of 250 million lb per year, is expected to prove valuable in the production of zirconium, titanium and beryllium.

Speed-Test Aluminum

A precision-cast, aluminum impeller was recently whirled at a peripheral velocity of 2000 mph, almost three times the speed of sound. Object of the test was to obtain proof of the superiority of new aluminum alloys.

New Refractory For Steel

A new magnesite-chrome basic refractory, designed primarily for use in steel producing furnaces, is said to have many advantages, including: high corrosion resistance, high load bearing strength at elevated temperatures, and a high melting point. Claim is that this desirable combination of properties offers the steel producer greater productivity and lower maintenance costs for electric or openhearth furnaces.

Bath Wear-Coats Titanium

A bath-applied coating of sodium-tetraborate-fluoride will give titanium and its alloys a remarkably wear-resistant surface, a research report claims. Of all baths tested, this one provides the most versatile coating. In addition, it's both reproducible and easy to control. The coating is produced at a temperature below that of any phase transformation in titanium alloys.

Cost Control Helps Mills

With the need for all-out production past for the moment, steel mills are bearing down hard on cost controls. In general, the effort calls for a careful review of production methods and a tightening of controls wherever the need is evident. One mill recently instituted a program of detailed cost forecasts. Another, despite a reduced level of operations, recently had the most profitable month in its history.

X-ray Eyes Tell All

A new X-ray instrument with a 50,000-v beam can be used in either of two ways as a handy tool for metallurgical analysis. Used as a spectrometer, it can determine the amount of a given element in alloy steel in 10 seconds. Or, serving as a diffractometer, it magnifies atomic structure 150 million times, making it possible to visualize atomic arrangement in metals.

Rocket To Moon, Soon?

Defense officials say they can now—on paper—put a rocket on the moon if they want to. They believe the earth's gravitational pull can be broken with a propulsion principle based on nuclear reaction. Tests of the principles involved in the device will be made soon, it's said.

Practical ICBM Defense?

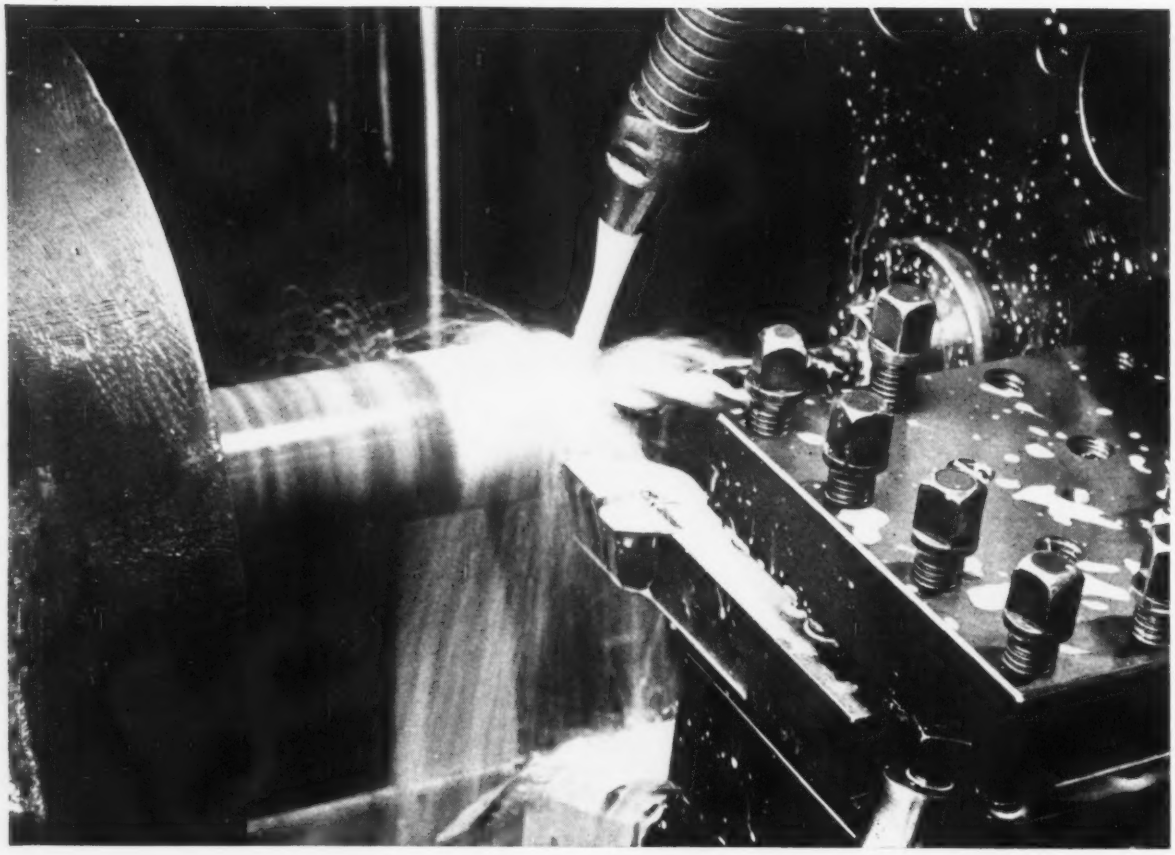
Army chieftains itch to prove intercontinental ballistic missiles (ICBM's) can be stopped. It's feasible with another missile, says Gen. Gavin, head of Army research and development. He claims $12 million in the coming year would cover a program to prove what can be done.

Weld Pipe In Trench

A new technique to simplify welding of pipeline in narrow trenches will be announced soon. It makes a forge weld by induction heating in 55 sec. Only a square-butt preparation is needed. Hydraulic pressure does the rest, leaving a smooth joint with all the upset on the outside.

Spray Boosts Die Life

A spray method of lubrication improves general safety and lengthens die life at a midwest extrusion plant. In addition to fewer shutdowns for die cleaning and servicing, number of rejects scored by tramp metal is less than half of what it was before the new system went in.



How to get full value from your automatic machine tools...at no extra cost

EVERY time you stop to adjust your automatic machine tools, you reduce their potential. But if the steel you machine is uniform, you reduce these costly interruptions. The more uniform the steel you machine, the more available your machine tools become for increased production.

Timken® fine alloy steel is uniform from bar to bar, heat to heat, order to order. We take *extra* quality control steps to make it that way. For example, we use a magnetic stirrer—the first in the U. S.—to distribute alloys equally in molten steel, keep temperatures constant, work the slag continuously. The industry's first direct-reading spectrometer insures uniform composition right up to the tapping—helps keep grain size uniform, too.

And your order is handled individually. We stamp each bar to identify its heat, even adjust our conditioning procedure to meet your end use requirement.

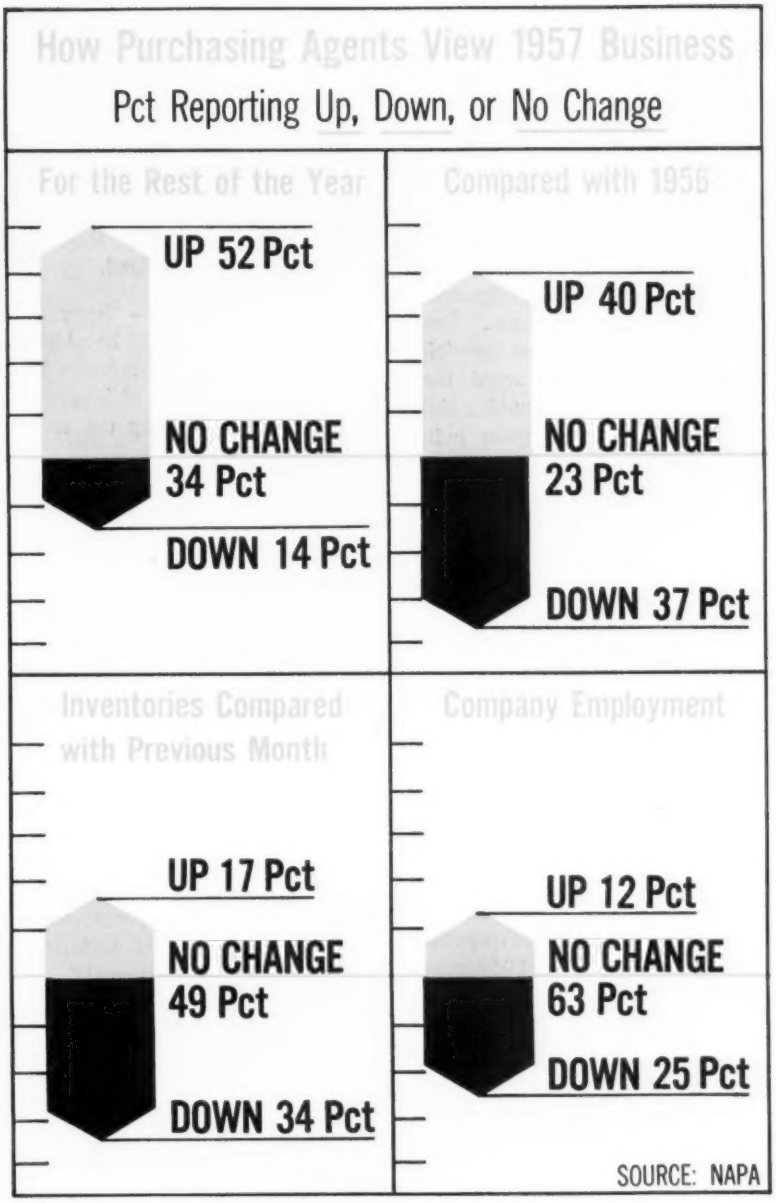
We're steelmakers because we need the finest quality steel for Timken bearings. The Timken steel you buy must meet these same exacting standards. Always specify Timken fine alloy steel. You'll get time and money-saving uniformity, a more uniform finished product. The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, O. Cable: "TIMROSCO".

TIMKEN *Fine Alloy* STEEL

SPECIALISTS IN FINE ALLOY STEELS, GRAPHITIC TOOL STEELS AND SEAMLESS STEEL TUBING

Purchasing Agents Think Business Will Be Good

But Inventory Cuts are Worrisome



Bullish attitude prevails at annual meeting of purchasing agents.

Most buyers look for an upturn in last half. Some count on more aggressive selling.

Speakers caution against overdoing inventory cutbacks; urge alertness to change.

▪ "I was feeling pretty optimistic when I came over here, but I feel even better now after talking with some of the people at the meeting," said the buyer for a nonferrous products company.

"We are expecting that '57 business will be as good as last year's, although we're counting on a pickup in last half to balance things out," echoed another.

Pickup Expected — "Our sales were off for the first three to four months this year, but we believe the last half will show a decided improvement," said a conventioner from a manufacturer of school equipment.

"Business was off during the sec-

For Purchasing Agents

STARTING NEXT WEEK: A special page for purchasing agents. Designed to help busy metalworking buyers do a better job. It will appear each week on the page following THE IRON AGE Steel Summary.

ond quarter, but we think more aggressive selling will push our sales up in the balance of this year," predicted a buyer for an optical equipment firm.

Bulls Outnumber Bears—At the 42nd annual Convention of the National Assn. of Purchasing Agents in Atlantic City last week, most of the people you ran into were in an optimistic frame of mind. And NAPA's own survey (see p. 51) bore this out. Those who felt otherwise said inventory cutbacks and "tight money" were slowing things down.

But despite the prevailing bullishness, there was a certain amount of looking over the shoulder. The slowdown in some industries, particularly automotive and appliances, was worrisome. This caution was betrayed in the continuing emphasis on inventory reduction.

Alert Sounded — Convention speakers generally were optimistic on the business outlook. Some warned delegates against overdoing inventory reductions, urged them to be on the alert for sudden shifts in the business of supplier industries.

Tom Campbell, editor-in-chief, THE IRON AGE, told members of NAPA's non-ferrous metals section that some factors retarding output, sales, and growth of non-ferrous metals will be washed out later this year.

Improvement Noted — Mr. Campbell pointed out that orders for copper and aluminum already are showing some signs of improvement as many customers scrape the bottom of the inventory barrel.

"By this September," he added, "orders for aluminum, copper and zinc will show far more pep than they do now due to the 1958 model car production, an end of inventory cutbacks, a slight pickup in housing, and much greater spending for defense items."

Steel Outlook—Richard F. Sentner, executive vice president—commercial, U. S. Steel Corp., explained the current steel situation as one of high steel consumption, but with fewer tons going into inventory as compared with 1956. He predicted that 1957 will be a record for steel consumption, with production c l o s e l y approaching "the all-time record for the past two years."

"We must look beyond steel consumption for an explanation of the apparent easing of steel availability," said Mr. Sentner. "One reason, of course, is the reduction in the flow of steel into consumers' stockpiles. In the first quarter of 1956 nearly 4 million tons of steel went into such inventories. This year, in a comparable period, our calculations indicate that only about half as much has been added.

A Look Ahead — "From this point on, very little will be added to steel inventories, and undoubtedly a moderate liquidation of inventories will take place during the second half of the year.

In purchasing as in other business relations, the best contract is one that both sides understand, said Robert W. Murphy, vice president and general counsel of Borg-Warner Corp. Speaking on the "legal pitfalls" of purchasing, he told the convention:

Make It Simple—"In many situations, the best kind of communication to use in talking with your supplier is the vernacular. Actually some of the best contracts—if by 'best contracts' we mean contracts least likely to result in litigation—are those stated in the vernacular—because both parties understand the language that was used."

H. Stafford Kellam, outgoing president of NAPA, said in his keynote address that small business has more to gain from working closely with larger companies than from reliance on government assistance.

Program For Progress—Mr. Kel-

LEFT: H. Stafford Kellam, outgoing president of NAPA (left) and Robert E. Shillady, who will head purchasing agents during the coming year. (See story.)

lam, who directs purchases for General Electric's Circuit Protective Devices Dept., Plainville, Conn., predicted that "our industrial future will largely depend upon a broad foundation made up of highly skilled suppliers, of which small business will be a major contributing factor."

The speaker laid down a three-point program for purchasing agents as a means of furthering the progress of their own companies and the economy as a whole: (1) By establishing more constructive relationships between big and small business; (2) by building up closer relationships between salemen and purchasing men, and (3) by helping to fight inflation.

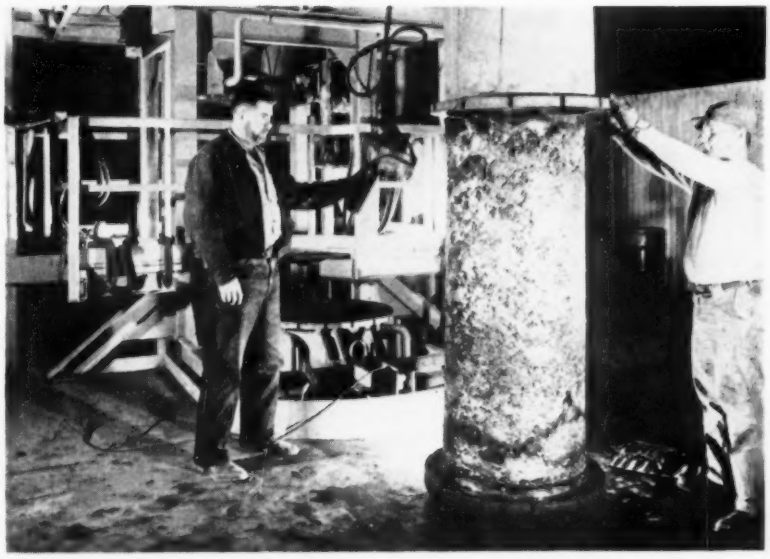
Robert E. Shillady, general purchasing agent of New England Electric System Companies, Boston, was elected president for 1957-1958. Executive Committee members during the coming year will include Gordon Affleck, H. Stafford Kellam, Robert E. Shillady, Richard C. Fast, Thomas G. Paterson, Jr., Leonard Butters, Robert Wier III, Lyle E. Treadway, C. C. Sisk, John F. Snedeker, and Thomas W. Seavor.

Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., THE IRON AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

More Fasteners

Standard Pressed Steel Co. plans to build a $750,000 addition to its plant at Jenkintown, Pa., primarily for production of precision fasteners. It will also allow more room for research and development laboratories.

The 55,000 sq ft building is part of a $9 million expansion program. Currently under construction are an 80,000 sq ft addition to the firm's pressed steel div. at Jenkintown; a plant in Santa Ana, Calif.; and an addition to a subsidiary at Coventry, England.



STRIPPING: Ingot comes from mold in consumable electrode furnace.

Vacuum Melt Furnace Licensed For Sale

Release of consumable electrode remelting furnace for general sale points up growing importance of the process.

Near-term use will probably be in the field of specialty metals.

▪ The consumable electrode vacuum remelting furnace—used for the production of titanium and superalloys—has been made available for industry-wide commercial use by its developers.

Titanium Metals Corp. of America, jointly owned by Allegheny Ludlum Steel Corp. and National Lead Co., has announced details of an agreement with Lectromelt Furnace Div. of McGraw-Edison. Under its terms Lectromelt has the right to build and sell furnaces "to such companies as may be licensed for this production technique by Allegheny Ludlum or Titanium Metals."

Other Firms Active—The consumable electrode process is now used by TMCA for titanium melting and by Allegheny Ludlum for the production of superalloys.

The licensing action points up the growing importance of processing by vacuum melting. Crucible Steel Corp. recently announced a $1.5 million program to double vacuum melting capacity of Vacuum Metals Corp. at Syracuse, N. Y. And Universal Cyclops Steel Corp. expects to get into commercial production of vacuum remelted steel this month.

Applications Charted — Significance of the furnace sale is hard to judge.

For the immediate future the process will probably be used for specialty metals. However, vacuum melting has broadened its field considerably in the few years of its use. Bearing and other low alloy steels are now being melted.

New Start for Alloy Structurals

Designers Push Fresh Sales Revival

Tonnage of high strength structurals is still small compared with carbon.

But its advantages are leading more designers and engineers to specify alloy or low alloy structurals. Federal bridge building is a big factor.

▪ Pressure from engineers and designers is forcing alloy and low alloy structurals up to a more respectable percentage of the total structural market.

Although fabricators aren't paying much attention to the trend yet, shipments of high strength, low alloy structurals in the first quarter of 1957 are more than double shipments last year.

In the first three months of 1956, shipments of high strength, low alloy structurals totaled a mere 7,658 tons. In the same period of this year, shipments reached 15,493 tons, with the trend on the increase.

Disadvantages to Overcome—Full alloy structurals are holding their own, but new developments, particularly in bridge building, should result in shipments that will equal or exceed those of 1956.

The obstacle to overcome for alloy structurals is making their advantages, greater strength for weight, better corrosion resistance (important in coastal areas), overcome their higher initial cost and higher cost of fabricating.

Gains in shipments of alloy structurals are far ahead of the comeback in shipments and bookings of fabricated structural steel. Fabricator bookings began to strengthen in March and April of this year (see chart). But alloy structurals had already doubled their 1956 monthly average in March shipments.

Greater Costs—Fabricators are slow to go along with the higher cost alloys. As one pointed out at an American Institute of Steel Construction meeting, alloy and low alloy structurals cost about 5 pct more to fabricate because of higher tool breakage, slower machining rates, more careful application of stiffeners.

The steel itself may cost 20 to 50 pct more than conventional carbon steels. This is a lot to overcome.

Behind the Push—Three other factors are helping push alloy structurals' use: 1. A strong sales push from producers; 2. A comprehensive education program at the fabricator and engineering levels; 3. Federal bridge structural applications made to order for alloy structurals.

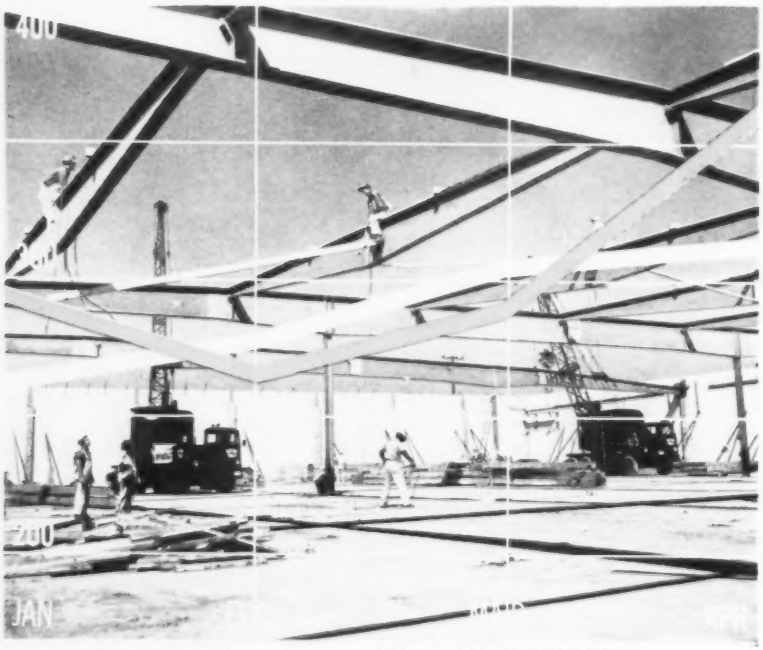
The weight - for - size advantage, corrosion resistance four to six times greater than carbon steels, and greater weldability for some grades are behind the engineers' preference.

New full alloys offer nearly double the strength of low alloy structurals of equal size and weight. Bridge builders incorporating USS high strength steels have achieved 15 pct reductions in steel tonnages.

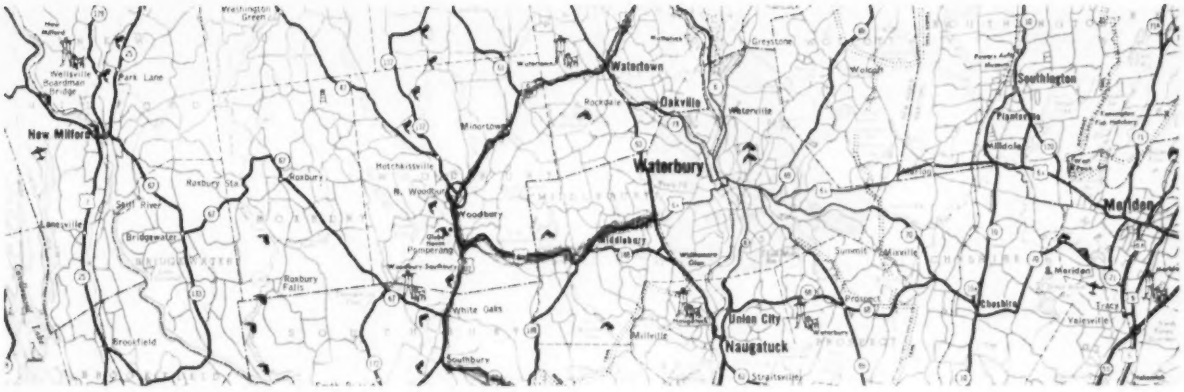
No Threat to Carbon—Alloyed structurals aren't out to lick carbon. Percentage of alloy structurals has yet to reach one pct of carbon. But a number of engineers want to design for high strength steels.

Steel Construction Picks Up

Fabricated Structural Steel (Thousands of Net Tons)



Source: American Institute of Steel Construction



Yankee Brass Mills Look Ahead

Sales managers in the heart of brass mill country (map, above) look for first signs of firmness.

Many mills say upped auto buying will signal start of general inventory rebuilding.

■ Most of the brass mills concentrated along Connecticut's Naugatuck River are looking for a firmer market. But their optimism is tempered by two big "if's."

"Pickup in our business will depend on how well the new auto models sell," says an executive of an upriver sheet mill.

A top sales executive of a large mill adds: "When job shop business picks up, so will brass mill orders and shipments." He defines job shops as companies which fabricate different items, in specified quantities on contract.

How Some See It—Automakers are brass mills' biggest customers. Detroit inventories are low. Word is that some of the 1958 models, including GM's high volume Chevrolet and Pontiac, will be complete changeovers rather than facelifts. If the public likes them, auto companies will boost buying of brass mill products. This, the mills say, will firm the market.

"We sell a lot of sheet to Chevrolet," reports the assistant sales manager of an independent mill. "They're buying less than we had expected for 1957 models. If a complete changeover in 1958 models boosts their sales, they'll have to buy a lot more sheet."

Job Shop Factor—Those who believe a market pickup depends largely on the job shops say auto companies, and all standard products makers (fabricating the same items all year round), will continue to buy hand to mouth. Their reason: purchasing agents are in the driver's seat, won't rebuild inventories even if their business picks up.

They say that job shops rarely know what sizes and alloys the next contract will require, making it hard to maintain an inventory. When job shops start landing more contracts, they will start buying bigger tonnages. This will firm the market enough to convince standard product makers to rebuild inventories.

Up In Last Quarter—Just when things will firm up is a matter of opinion. Mills which consider auto buying the main factor see no change until the new models are out, probably in the fourth quarter. Many brass sales managers look for better business near the end of the third quarter. Some few are more optimistic.

A rolling mill reports business has started to pickup in the last two or three weeks. And some tube mills report books are beginning to fatten, due mostly to an increase in building activity. There will be a flurry of business late this month as some mills stock customer shelves with enough to hold them over a vacation shutdown in July. But this is not a boost in total buying.

Could Change Fast—"When the market changes, it could shift overnight," says an executive of one of the larger mills. His counterpart at a nearby mill agrees: "The market could go to the other extreme rapidly." These mills say when this happens delivery delays as high as a month-to-six-weeks could be the order of the day.

It's pointed out that because of the wide variety of alloys and sizes the mills are unable to maintain big stocks of finished products. It will take time to finish semi-finished stocks and soup up production lines. Few, if any, Naugatuck Valley mills are running on full production schedules. Most are operating on a four-day week.

Maybe Not—A few mills disagree on delivery lead times. They admit that it will take some time to get lines rolling full blast. But they insist their finished inventories are adequate to meet any jump in customer buying.

These mills say there will never again be a major delivery problem. Once lines are rolling there is more than enough capacity.

Mine Equipment Sales Reviving

Mechanization Hits the Bituminous Fields

Mine operators spent 20 pct more for equipment last year than in 1954. This year will see even more.

The surge has its basis in solid economics—an upswing in general industrial activity.

▪ After a long period of uncertainty, makers of mining equipment are viewing sales with smiling confidence today.

Sales jumped 48 pct last year at Joy Manufacturing Co., which makes loaders, drills and other major mining tools. There was a 69 pct gain last year at Penn Machine Co., which makes replacement parts and rail bonds for coal mining equipment. Mine Safety Appliance Co. had its best year for mining products since 1948.

The gains of these Pittsburgh companies reflect a general boom in the mine equipment industry. Last year mine operators spent over $1 billion on equipment and supplies. This was more than $200 million over 1954 expenditures; it was up nearly $100 million from 1955.

On Solid Ground — Current figures indicate mining equipment spending will again go over the billion dollar mark, with probably a slight advance from 1956. Past spurts of the mining and mining equipment industries have been inflated by artificial wartime and postwar conditions. They fizzled out fast when the emergencies passed.

The present advance has a solid, commercial basis. It has been sparked by the comeback of coal, which takes about half the mining equipment made.

Soft coal production topped 470 million tons in 1955. It went over 500 million tons last year. This pickup accompanied an intensive mechanization drive by mine operators.

Big Spending Plans — By this means, the operators were able to keep costs and prices within bounds as labor pay climbed steadily. In 1950, the basic day rate in the mines was $14.75. Today the rate is $22.25. However, the production of one man in a day has risen from 4 tons in 1920 to 5.2 tons in 1941; 7.0 tons in 1951; and 10.8 tons today.

With the pressure of new wage increases always on them, mine operators plan to continue their mechanization program. They are due to spend $1.5 billion over the next five years, just for new equipment.

Replacement Bonanza — While the coal industry has been able to carry mechanization further than other mining groups, there is a general push in the direction of more equipment. Iron ore producers will increase expenditures for capital equipment from $45 million in 1956 to $69 million this year.

These figures do not include replacement parts, which total more than new equipment. This year, the mining industry will spend over $600 million on replacement items.

MECHANIZED MINING: This 34-in. high Joy 3JCM-4 Continuous Miner is part of the line of mining equipment that has boosted the 1956 sales of its manufacturer 48 pct, illustrative of the boom in this industry.

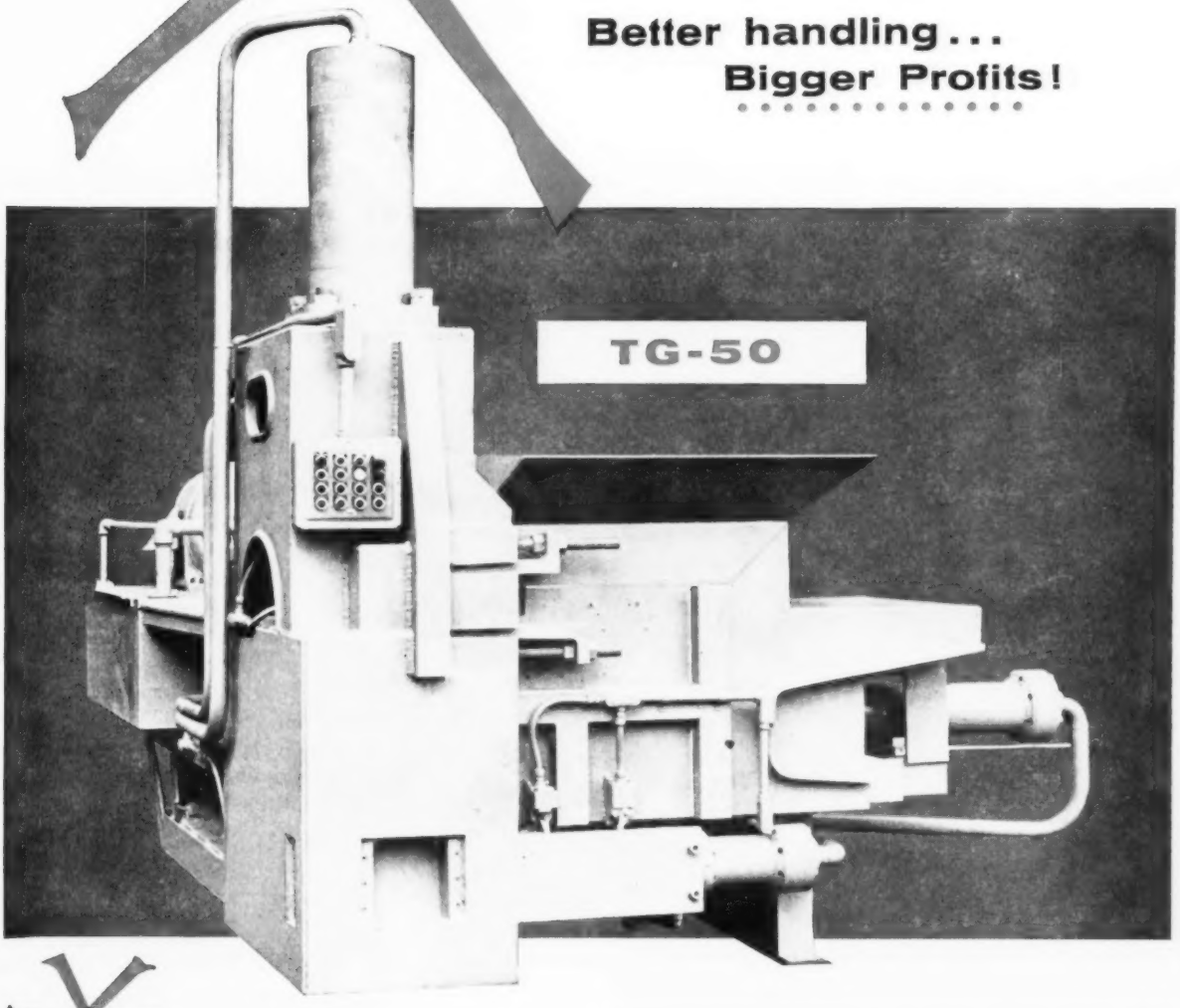
HARRIS PRESSES

move

scrap

fast...

Better handling...
Bigger Profits!



The new Harris TG-50 Baler is designed especially for baling materials uniform enough for conveyor type feeding. All bales measure 8" x 8" x variable length, and can be made at a rate of 120 bales of non-ferrous materials per hour. This press sits on top of the ground and can be moved with a minimum of effort.

Talk with a man from Harris

HARRIS FOUNDRY & MACHINE CO.

Reclamation Engineers Since 1889

CORDELE, GEORGIA

New Ceramic Aims At Missiles

Pyroceram goes to work in the guided missile field. 'Just the beginning,' the company says.

Its versatility in high volume production makes it a contender for many more markets.

■ A tough new ceramic material—claimed to be harder than steel and lighter than aluminum—will get its industrial baptism as a guided missile component. The material is called Pyroceram. It was developed by Corning Glass Works.

Dr. William H. Armistead, vice president and director of research, said a Pyroceram composition is being developed for use as nose cones for guided missiles.

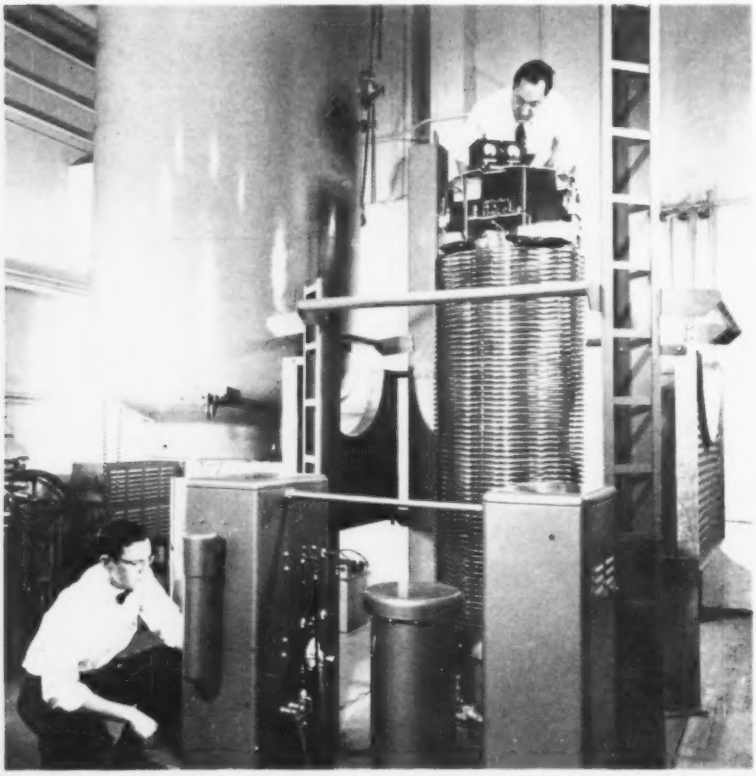
High Strength—The ceramic cone protects the sensitive directional instruments in the nose of the missile from sudden high temperature changes during hypersonic flight. The softening point of this Pyroceram, he says, is 2460°F, which is above the melting point of some stainless steels. It has a flexural strength of 40,000 lb psi.

Other possible uses which Corning sees for its new product is in supersonic aircraft parts, jet engine parts, piping for chemical and oil refineries, architectural curtain walls, and as a heat-conducting material for kitchen ranges.

Versatile in Production—"Unlike most high-strength, high temperature crystalline materials," said Dr. Armistead, "Pyroceram has great flexibility in forming. It can be made into large or complex shapes by any of the known glass-forming techniques. It is adaptable to mass production, and can be pressed, drawn, blown, rolled and centrifugally cast."

Of the more than 400 different Pyroceram compositions, some can be formed by investment casting techniques such as those used in metal foundries, enabling it to be fashioned into complex, close tolerance parts.

Credit for inventing the new material goes to Dr. S. Donald Stookey, manager of Corning's Fundamental Chemical Research Dept.



ATOM CRACKER: Van de Graaff accelerator, a 3-million electron volt "atom smasher," is key tool in new Gulf Oil nuclear research laboratory. Lab is one of three dedicated last week at Gulf research center, near Pittsburgh. High Voltage Engineering built the 20-ft high machine.

Swap Extrusion Tips

A greater exchange of information between U. S. and European impact extruders is proposed by Kenneth M. Leghorn, president, Sun Tube Corp. The exchange, he says, will work for mutual benefit.

"European impact extruders have the benefit of longer experience in this industry than we do. However, we have much to offer because of our modern facilities and production know-how," he points out.

Mr. Leghorn visited eight countries recently, including England, France, West Germany, Austria and Denmark.

Non-Stop Barge Trip

The first through-barge shipment of tin plate from the Chicago area to Florida was delivered to American Can Company's Tampa plant. The tin plate was loaded at Inland Steel Company's Indiana Harbor plant into a through-service barge operated by A. L. Mechling Barge Lines, Joliet, Ill.

The barge was towed down the Illinois and Mississippi rivers and then across the Gulf to Tampa. No transfer was required.

Expert Workmen Deserve

ILLINITE® END MILLS

the complete line of premium-quality end mills...

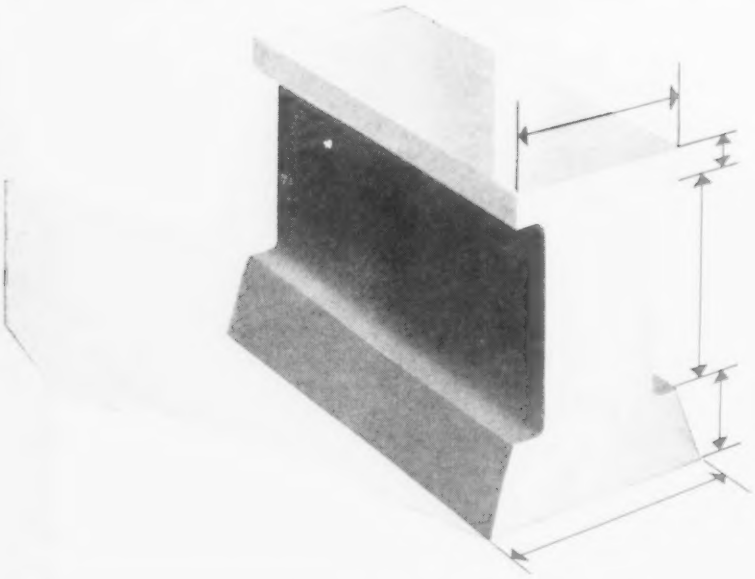
AVAILABLE FROM ILLINITE DISTRIBUTOR STOCK

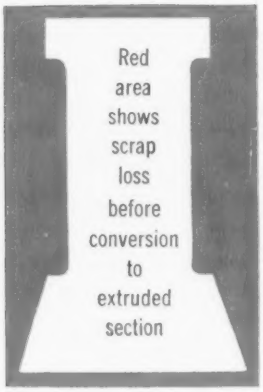
Skilled hands demand accurate tooling to get the most out of modern, high speed equipment. Every ILLINITE End Mill is engineered to exacting tolerances for clean metal removal. All flutes are fine-finished to prevent clogging. Available in thirty-eight different styles and in a full size range, ILLINITE End Mills are your assurance of consistent performance with maximum savings for every application. Illinois Tool Works research creates new tools, such as Tri-Mil End Mills, to offer industry the best possible line of standard metal cutting tools. And, they're only a phone call away. Call your ILLINITE distributor today. You'll be glad you did!

ILLINITE®
Metal Cutting Tools
DIVISION OF ILLINOIS TOOL WORKS
2501 N. Keeler Ave., Chicago 39, Illinois

itw

Cost per clamp cut from $1.06 to 58¢ with J&L hot extruded cold drawn section





This manufacturer cut the cost of contact clamps 45% by converting to J&L extruded sections. Previous cost of $1.06 per part involved costly milling and scrap loss from cold drawn 1½" x 1" flats.

Here's how extruded sections can cut your cost:

1. Eliminate machining and finishing operations.
2. Reduce scrap losses almost to zero.
3. Eliminate cost of casting and forging intricate sections.
4. Reduce inventories because extrusions are quickly available.

Investigate this new production technique for your shape profiles—within present limits of a design which can be inscribed in a three-inch circle. Available in a wide range of carbon and alloy steels. For specialty alloy and tool steels, submit inquiry. Get complete details by writing to the Jones & Laughlin Steel Corporation, Dept. 403, 3 Gateway Center, Pittsburgh 30, Pennsylvania.

Jones & Laughlin STEEL ... a great name in steel

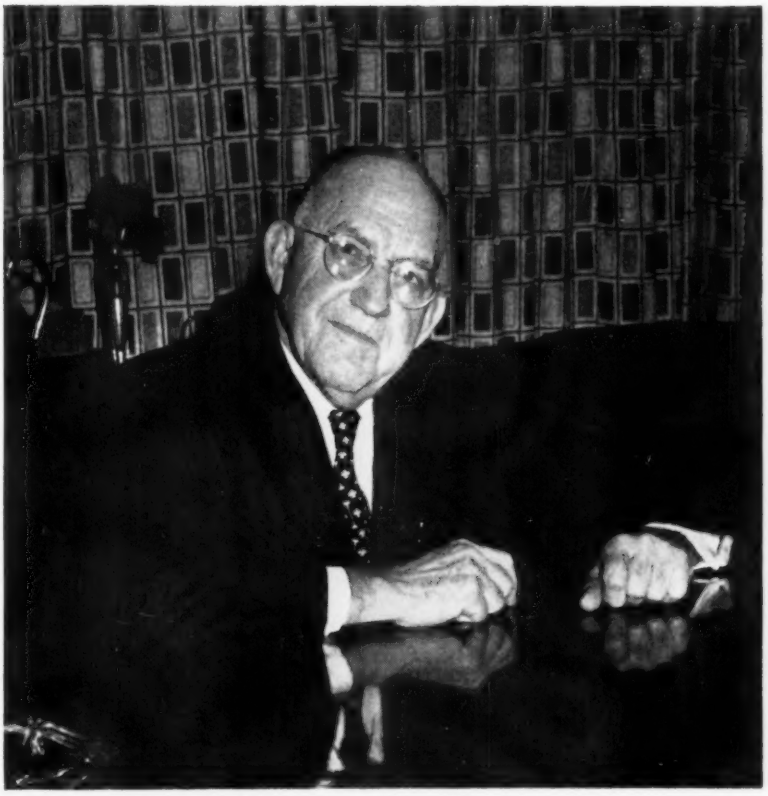
James H. Bull

Growth on the Inland Waterways

This empire-builder started in business when a keg of nails was an extravagant purchase.

To take up the slack when ship-building was slow, he diversified into porcelain enameling and foundry products.

Now his company's name is a byword on the Mississippi.



James H. Bull: Faith and diversification pay off.

■ Down in the delta country, where the muddy Mississippi meets the Gulf of Mexico, a bustling shipyard stands as a monument to one man's faith in the future of the South and the inland waterways.

In a span of 18 years, James H. Bull converted a handful of cash into a multi-million dollar shipbuilding and steel fabricating plant known as Avondale Marine Ways, Inc. of New Orleans. The names Bull and Avondale now are synonymous throughout the length and breadth of the Mississippi Valley. They are equally well-known in the petroleum industry.

Forecast Traffic Buildup—Hardly a bargeman or tugboat captain on the Mississippi hasn't at one time or another walked down the docks at Mr. Bull's Harvey Quick Repair Plant, located at the crossroads of the inland waterways in the Port of New Orleans. More than 2000 vessels are serviced there annually.

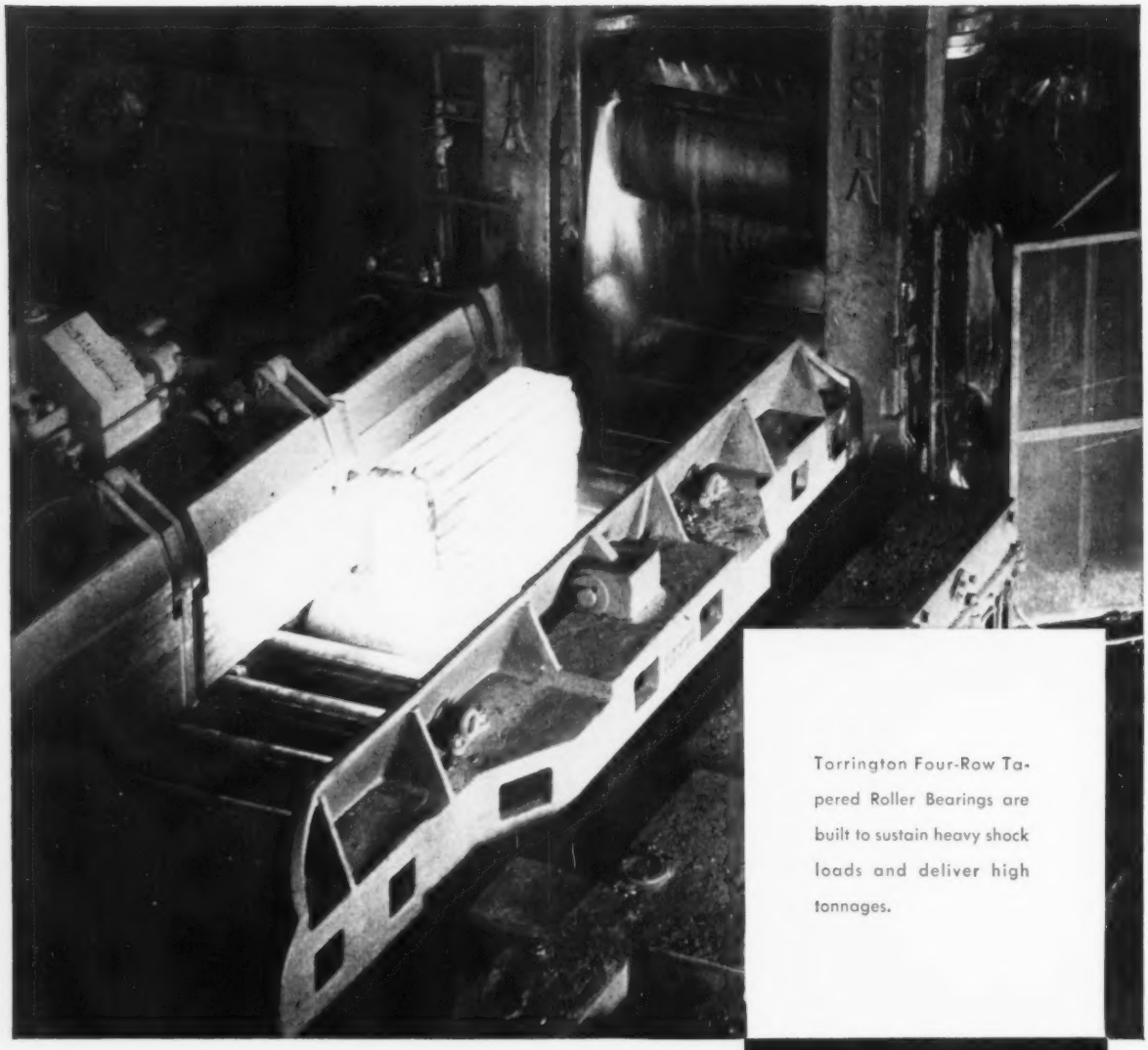
While many shipbuilding interests were retrenching after World War II, James Bull continued to expand Avondale's operations with full confidence in the country's future. River traffic, he figured, had no way to go but up.

Quick to Diversify — He also jumped at opportunities for diversification; established the Service Foundry, one of the larger foundry installations in the South; and started a modern porcelain enameling plant specializing in architectural products.

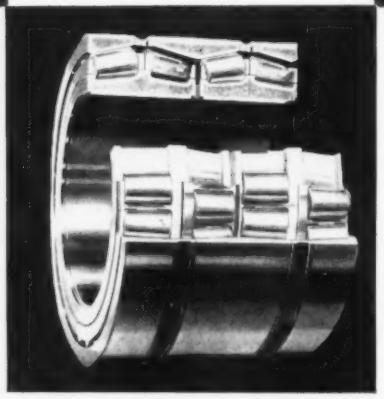
Starting in business during the Thirties took courage. Staying in business required determination, vision, and luck. At the time, Mr. Bull was no youngster. At 56, he already had a lifetime of hard work behind him. He spent many years at U. S. Steel's Tennessee Coal & Iron Div., Birmingham, before moving to New Orleans. But his age and the timing of his business venture apparently worked in his favor.

Mass Produces Boats—Seasoned judgment kept him clear of rash decisions. And the onset of World War II found his mile-and-a-half-long repair yard along the Mississippi ready to handle vital shipbuilding contracts.

A proponent of steel-built boats, one of Mr. Bull's outstanding accomplishments was the assembly-line technique for shipbuilding. His Avondale yard turned out 29 ocean-going super diesel tugs in 205 days (one every six days after completion of the first tug). The performance won him the acclaim of industry and government officials.



Torrington Four-Row Tapered Roller Bearings are built to sustain heavy shock loads and deliver high tonnages.



When the squeeze is on!

Under the pressure of high production schedules, Torrington Bearings handle heavy thrust and radial loads with reliability and stamina that mean *tonnage* with *economy*. Only the finest electric furnace steel is used in their construction. Races and rollers are carburized and heat-treated for toughness, stability, hardness and uniformity. Precision tolerances and finishes mean minimum friction, low eccentricity and uniform load distribution.

Torrington Work Roll Bearings come in many standard sizes in both two-row and four-row, with either pin-type or cast-bronze, land-riding cages. For handling any combination of radial and thrust loads, you can do it better with Torrington Bearings. **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

TORRINGTON BEARINGS

District Offices and Distributors in Principal Cities of United States and Canada

TAPERED ROLLER • SPHERICAL ROLLER • CYLINDRICAL ROLLER • NEEDLE • BALL • NEEDLE ROLLERS • THRUST

Why Wages Worry Management

Bureau of Labor Statistics beats around the bush, but its figures show rapid rise of wages over productivity gains.

Increase is more rapid in recent months, contributing to management's acute concern.

■ The Bureau of Labor Statistics of the Dept. of Labor has just issued a report to the Joint Economic Committee on the relationship of wages, labor costs, productivity and prices. It is loaded with labor relations dynamite.

So explosive is the subject of productivity versus wages that the Bureau has gone to great lengths to insulate itself from the controversy. The report is prefaced with a series of cautionings and qualifications against misinterpreting or jumping to hasty conclusions.

There's a Reason—Why all the smokestacking? It could be to protect the Labor Dept. from charges of taking sides in the current and continuous debate on labor's role in creating inflationary pressures.

The Administration has worked hard to avoid an anti-labor tag. And conclusions of the report, regardless of qualifications, are not apt to be favorable to labor's side of the debate.

Regardless of the sidestepping, you will find the report an interesting study, with obvious conclusions to management. It will be quoted many times in the next few months and pointed to as evidence.

. . . Productivity Lags Behind Pay Raises

Wages Over Productivity—How to interpret the report depends from which side of the issue you view it. But from any point of view, it shows that wages have climbed much faster since 1947 than productivity.

Significantly, this trend has accelerated in recent years. It underscores why management is increasingly concerned over climbing costs of labor and its importance as an inflationary factor.

Earnings Up 61 Pct—In terms of current dollars, average hourly earnings, including contributions of employers, increased slightly more than 61 pct since 1947. In the same period, increase in output per man-hour was only about 26 pct.

This amounts to a 35 pct increase over a nine-year period. But almost 10 pct of the increase came during 1956 alone, indicating the rapid increase in recent months. Indications are this trend of wage increase exceeding productivity is continuing.

Real Earnings Less—The Bureau makes a good case using "constant dollars" to show that if Consumer Price Index is applied to wages, the increase in "real earnings" in that period is about 33 pct, not 61 pct.

But the Bureau itself suggests that current dollars should be used on questions of changes in labor costs of production. Constant dollars, or real purchasing power, should be used to express labor's share in the real gains of productivity.

How Much — The conclusion: "The figures indicate that average hourly compensation in current dollars increased much more than productivity during the postwar period."

The report contends that the increase in compensation in current dollars represents an increase in labor costs only to the extent that it exceeds the increase in productivity.

Sales Up, Inventories Down

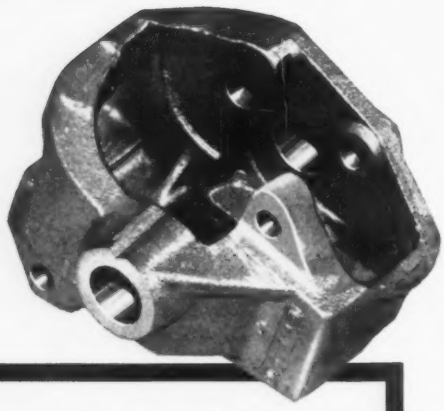
Purchases Increase — Here's an important point to make when evaluating your business prospects on the basis of recent trends:

During the first quarter, total purchases of goods and services continued to expand. This is in apparent conflict to a stable index of industrial production and apparent softness of markets for some of the basic materials.

Inventory Factor—This paradox is accounted for by a shift in general policy from inventory accumulation to one of mild inventory liquidation. In the fourth quarter of 1956, inventory was being accumulated at an annual rate of $4.1 billion.

In contrast, the first quarter of this year saw inventories being liquidated at the annual rate of $1.2 billion.

It has been pointed out here previously that inventory policies may be the most significant factors in business this year. They can also be misleading unless interpreted.

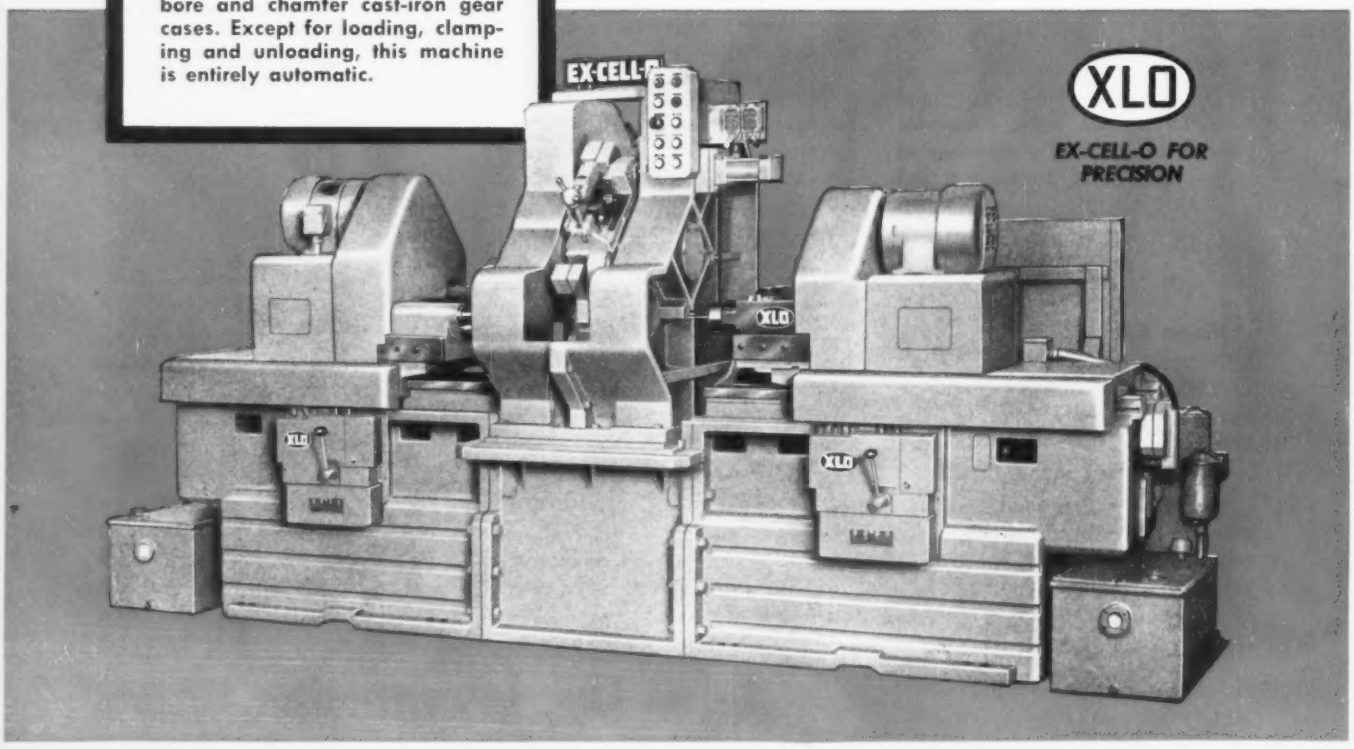


Lowers Cost of Gear Cases– Speeds Production!

Ex-Cell-O 2-Way Machine

ABOVE: Gear case after machining. Hole sizes are held within .0005", centers .001".

BELOW: This Ex-Cell-O Precision Two-Way Machine equipped to bore and chamfer cast-iron gear cases. Except for loading, clamping and unloading, this machine is entirely automatic.



Typical of Ex-Cell-O's constant improvement in the field of precision production is this Two-Way Precision Boring Machine.

Operations on the cast-iron gear case illustrated include finish boring seven holes and chamfering diameters at two points. With its new hydraulic control panel each way unit has a greater range of feeds and a higher rate of rapid traverse.

Like all standard Ex-Cell-O Machines, this Two-Way Model is easily adapted at slight cost to a variety of precision setups. For further information, contact the Ex-Cell-O representative in your area, or write, wire or phone direct to Ex-Cell-O, Detroit.

EX-CELL-O
CORPORATION
DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS • GRINDING SPINDLES • CUTTING TOOLS • RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

57-2

Let's Make Sense In Our Depreciation Policies

By **Joel Barlow**—Partner, Covington and Burling, Washington, D. C.

Out-dated depreciation policies cause some firms to lose out both to inflation and their competitors.

Here the author tells how best to depreciate under present Treasury regulations and suggests a substitute for Bulletin F.

■ Nearly one-third of American industrial concerns are still bound to the old straight-line method of depreciation for new additions to plant and equipment.

Surveys show many of these concerns are smaller companies, which continue to lose out to their bigger competitors principally because of their unrealistic depreciation and replacement policies. These firms are still applying unreasonably low depreciation rates based on the outmoded physical-life concept of the Treasury Dept.'s 1942 edition of Bulletin F.

Inflation Takes Its Toll — They seem to labor under the illusion that inflation has none of the continuing certainty of death and taxes —and that profits vary inversely with the amount of depreciation included in costs. They delude themselves, and sometimes their stockholders, into thinking that the smaller the depreciation allowance, the greater the profit.

The plain fact of the matter is that in following this Bulletin F "bible" (or in being forced to follow it), they have been losing out for many years to both their competitors and inflation. They have not been "getting their investment behind them" fast enough. They have been paying dividends, not out

Joel Barlow—is more than well-grounded in the tax and depreciation problems of the metalworking industry. As legal counsel for the National Machine Tool Builders' Assn., American Machine Tool Distributor's Assn. and the Metal Cutting Institute he is regarded as one of the best-qualified experts in this field.

Bulletin F Threatens Again

The concept of useful physical life, together with the schedules contained in Bulletin F, has played perhaps the most important role in keeping American industry in varying degrees of continuing obsolescence since the early 1930's.

Only when Bulletin F has been periodically relegated to the ash heap and five-year amortization substituted has facility expansion gained any real momentum.

Actually, a very convincing argument can be made that the dearth of expansion in capital equipment in the 1930's (which in turn stemmed from an indifference to realistic depreciation and replacement policies) contributed to and prolonged the depression period.

The Treasury has just announced that it is considering reinstating and reissuing Bulletin F which has temporarily been on the shelf since 1955 pending revision. The Commissioner of Internal Revenue has invited comments and recommendations from industry before June 30.

This is an opportunity which businesses both large and small cannot afford to overlook. It is a chance to get out from under those policies contributing to out of date plants and equipment.

Industry must respond intelligently and forcefully to this invitation if we are to avoid another Bulletin F strait jacket with its deterrent effect on modernization and expansion.

At a time when everybody in Washington is showing great interest and concern for the tax treatment of small business, smaller business concerns have only to raise their voice to be heard and be effective in opposing the reissuance of Bulletin F.

of profits, but in a gradual liquidation of assets they cannot afford to replace.

Fast Write-Offs Overlooked — Many were even unaware of the important benefits available under the emergency five-year amortization when that respite from Bulletin F was enacted in 1940 and 1950. Until 1954 this five-year write-off was about the only hope of recouping investment currently and providing adequate reserves for replacement. Even the New Deal, which put industry in the strait jacket of Bulletin F physical lives in the 1930's, belatedly learned its depreciation lesson by the time 1940 rolled around.

In that year it hurriedly adopted accelerated amortization when it realized that its unrealistic tax depreciation policy had resulted in an obsolete national plant wholly inadequate for the defense effort. The snowballing obsolescence in our productive facilities (due to unrealistic depreciation policies and practices stemming from Bulletin F) will bring about a recurrence of the tragic situation we faced in 1940 and 1950.

Threat of Obsolescence—Industry's failure to learn its depreciation lesson and get rid of Bulletin F has not only contributed (1) to the alarming obsolescence in present day manufacturing facilities, but also (2) to a serious overstatement of taxable earnings and profits, as well as (3) to the present dearth of available capital for industrial operations and expansion.

In 1956 industry paid income taxes on about $6 billion of capital consumption. This is simply one way of saying that industry overstated its income by six billion dollars and once more overpaid its income taxes by about three billion dollars.

Industry's failure may not have been so critical and costly in the years of capital expansion during the early 1950's when necessity certificate amortization was available. But the lesson must now be learned and in a hurry if industry entertains any hope of keeping ahead of inflation and providing its own capital requirements for plant modernization.

Five year amortization has about served its purpose in most industries. And industry generally no longer can avail itself of this allowance in recouping its investment and in making current provision for replacement. Inflation will now catch up with those who don't adopt a somewhat comparable accelerated depreciation program.

Shift Emphasis To Useful Life

■ The only sensible concept on which to base depreciation is the economic, not the physical, life of equipment. The economic life concept places less emphasis on wear and tear and more on the economic factors of obsolescence stemming from changes in the art. It is this obsolescence factor that many small companies have ignored in following the useful-life schedules of Bulletin F.

They pay less attention to how long it is economically sound to keep machine tools or other equipment in production rather than how long it will be before they wear out.

Apparently, only a relatively few taxpayers realize that the Treasury as well as the Congress has changed its thinking somewhat about depreciation. The new regulations under the 1954 Code recognize the economically useful-life concept and place much more emphasis on obsolescence. Former Treasury Secretary Humphrey's April 18 Iron Age article pointed out this new emphasis and the Treasury's changed thinking on the subject.

It is high time that taxpayers change their thinking, too, and get out of the Bulletin F strait jacket in which some examining or engineer agent put them in the 1930's or 1940's.

"Biblical" Bulletin F—The Treasury has always claimed that Bulletin F and its schedules of useful physical lives were initially designed to serve "solely as a guide or starting point" from which correct rates of depreciation could be determined. But practically, Bulletin F has ended up as the "bible" with Revenue agents insisting on the listed depreciable lives and the physical-life concept unless a taxpayer was enlightened and well-fortified enough to defend himself.

Many of the small companies were at a disadvantage because they had neither the know-how nor the funds to fight back. The disparity

Who Will Finance the Atomic Age?

Despite all the billions that have been poured into plant and equipment since 1950, there is considerable evidence that the wellsprings of private capital are beginning to dry up.

The Chairman of the Atomic Energy Commission is threatening to put the Government in the atomic energy business with a vengeance if private capital does not immediately respond.

This is, of course, grist for the mill of those chronic business critics who say that private capital and private enterprise are inadequate and that public ownership of production facilities is the only solution to the problem.

These same critics favor the high tax rates and low depreciation rates which have combined to dry up the flow of industrial capital and increase the Government's ownership of production facilities particularly in the aircraft industry. Recognizing that the new 1954 depreciation methods will reverse the trend, they like to refer to these new methods as "loopholes" and constantly urge their closing.

Private capital was able to rise to the occasion in the expansions of the railroad age, the automobile age and the aircraft age. Is it adequate for the atomic age? Or have the excessively high tax rates and unreasonably low depreciation rates already taken their toll?

This is really the critical question which prompts this article. The great expansion in plant and equipment since 1950 has been brought about principally under the impetus of fast-tax amortization. With this help generally no longer available the need for more liberal depreciation policies to aid in even further expansion becomes all the more important.

in treatment of the large and small taxpayer and competing taxpayers in the 1930's and 1940's was almost unbelievable. As a matter of fact, the Treasury, as well as many of these mistreated taxpayers, still does not realize this competitive disadvantage for small concerns.

The Revenue Service later tried to correct this by conducting industry depreciation surveys. Usually the result was that depreciable lives were extended simply on the basis of the unrealistic practices of the most unenlightened members of the industry group.

Most of the better managed companies got out of the Bulletin F strait jacket, but any number of others are still trying to survive under arbitrary depreciation schedules imposed by Revenue agents as far back as the 1930's. It doesn't make sense in the 1950's.

Inflation Calls For Faster Depreciation Methods

■ The new 1954 Code methods have been labeled "rapid," "liberal" and "accelerated." Someone has said that "names are only labels for our ignorance." This is certainly true in this case.

These new methods are rapid or accelerated only in that they are not so slow as the old straight-line method. They are liberal only in that they are not regressive and unrealistic like the old T.C. 4422 concept which was evolved for the sole purpose of collecting more taxes.

The new methods also have strange labels—"200% declining balance" and "sum-of-the-digits." But briefly stated, they simply mean that a taxpayer can now write off against income as much as 75 per cent of his facility cost during the first half of the depreciable life of any new facility acquired after December 31, 1953—if it has a life of three years or more.

200 Pct Declining Balance — Under the declining-balance method, the depreciation basis is reduced each year by the amount of the depreciation deduction, and a uniform rate, not more than twice the straight-line rate computed without adjustment for salvage, is applied to the resulting balances. Although no salvage is initially carved out of cost in determining the annual allowance under this method, an asset may not be depreciated below that specified as "a reasonable salvage value."

Since the double-declining-balance method tends to leave fairly substantial balances undepreciated at the end of the useful life, the taxpayer is permitted to change at any time to the old straight-line method and recover the remaining balance over the remaining useful life. Assuming a ten-year life, and without considering salvage value, it will usually be most advantageous to change, effective with the seventh year, since in this year the double-declining-balance method will result in a smaller deduction than if the balance were taken under the straight-line method.

Sum-of-the-Digits — Under the sum-of-the-digits method, changing fractions are applied each year to the original basis, less salvage value. The changing numerator of the fraction represents the remaining useful life. And the constant denominator is the sum of all the digits corresponding to the useful life. Since the sum of the fractions used will be one, this method has the advantage of completely depreciating an asset to salvage value over the useful life.

Although both methods may sound complicated, they are really quite simple. No taxpayer should hesitate to adopt one or the other under the misapprehension that he will unduly complicate his bookkeeping or get into needless depreciation controversy with the agent of the Internal Revenue Bureau.

Inflation's Demands—Our continuing inflationary spiral practically dictates the adoption of one or the other of these new methods. For example, assume productive equipment was purchased in 1954 for $10,000 and that it was assigned a useful physical life of fifteen years by the Internal Revenue Service.

If the next fifteen-year period is as inflationary as the past fifteen years have been, the rate of increase is replacement cost will be about 7 per cent per annum compounded.

Hence, if the traditional straight-line method is used to depreciate the equipment and the equipment is actually kept in production throughout the fifteen-year period, by the time it must be replaced the depreciation reserve will show a balance of $10,000, while approximately $27,300 will be required to replace the existing equipment.

Less Impact—Had one of the new methods of depreciation been used, coupled with a realistic enonomic life, the impact of the same inflationary increase would have been surprisingly less.

Using the 200% double-declining-balance method with a ten-year life, over half of the cost of the equipment will have been recovered by the time the increase is replacement cost will have risen only $225. If a five-year life is used, well over half of the cost will have been re-

covered by the time the replacement cost has risen less than $140 at the end of five years.

It must be kept in mind that the new 1954 methods do not apply to facilities acquired before January 1, 1954. But this does not mean that taxpayers permanently are saddled with the depreciable lives in Bulletin F which were imposed many years ago by some tax-collecting revenue agent.

No, as I have already mentioned, the Treasury has to a very significant extent, adopted more realistic and reasonable administrative posture. And it has recognized the growing importance of obsolescence as contrasted with the "wearing-out" process in its most recent regulations.

Faster Obsolescence—Treasury officials are coming to a realization that with the tremendous increase in the demand for capital goods and the amazing rapidity of technological changes, machinery becomes obsolete much faster today and its enonomically useful life is much shorter. Some of these officials have even been willing to admit that the historical pattern of the 1930's which was the basis for the Bulletin F schedules is an inadequate yardstick.

They recognize and so does the 1954 Code that new agreements on depreciation may be required to provide taxpayers with more reasonable allowances.

The 1954 Code authorizes the making of agreements between a taxpayer and the Commissioner of Internal Revenue, fixing the useful life on which the depreciation rate is based. The agreement is binding on both parties and can be modified only on a showing of facts which were not taken into consideration when the agreement was made. It may be advisable for some taxpayers to follow this procedure, but most taxpayers will be well advised to make a determination of their own and claim the higher depreciation rates in their federal income tax returns.

New Depreciation Rates: How To Prove Your Case

Before new depreciable lives and rates are adopted and included in tax returns, a careful analysis should be prepared covering all the factors and evidence supporting the changes.

Reference to the Commissioner's regulations is helpful but they are by no means exhaustive or necessarily the most important factors in making a case. This analysis should be retained in the company's tax file against the day the agent may challenge the new depreciation allowances.

What should such an analysis cover to support the shorter depreciable lives? Certainly the following questions must be answered and supported by stated facts and illustrations:

1. Why is the historical depreciation pattern of the 1930's and 1940's no longer applicable?

2. What adverse effect has the old low-rate depreciation pattern had on the company's operations?

3. How has it prejudiced the company's competitive position?

4. How inadequate for replacement is the depreciation reserve?

5. Why must more emphasis be put on obsolescence?

6. What recent acceleration (the last six or seven years) in the replacement of old facilities has taken place due to (a) 60-month amortization, (b) new products, (c) new production methods, (d) other technological developments?

7. Why will this be a continuing pattern?

8. How does the situation today contrast with that in the 1930's?

9. To what extent would the company's acquisitions have to be curtailed and what would the increase be in plant obsolescence if the old depreciation rates had to be continued?

10. Confronted again today with a wartime production emergency as in 1940 or 1950, how inadequate and obsolete would the company's facilities be?

11. What is the replacement cost of the company's facilities today as compared with actual cost when they were purchased?

This project of self-analysis requires some creative thinking, but many companies have carried it through successfully. As a result they are one jump ahead of their competitors and inflation instead of one jump behind. You may be sure that most of the larger companies have followed this procedure which accounts for their more realistic depreciation practices.

Bracket-Ceiling Method: A Substitute for Bulletin F ?

■ The failure over the years of both industry and the Government to understand the significance and consequences of tax depreciation may well have its roots in the complexity of present-day depreciation procedures and concepts and the problems of proof and evidence.

Actually, the procedures could quite easily and sensibly be simplified to the advantage of both the Government and private industry. All that is needed is an abandonment of the present Bulletin F approach and a reasonable ceiling on depreciable rates (or a reasonable floor on depreciable lives) by classes of facilities.

Any taxpayer wishing a shorter life or a higher rate would have the burden of proof. For example, a bracket ceiling of seven to ten years might be put on the depreciable lives of durable productive machinery and equipment; twenty to twenty-five years on the depreciable lives of building and plant installations; and three to five years on miscellaneous items which were assigned comparable lives under Bulletin F.

Justification — The three-to-five-year bracket can readily be justified because there is not much room for error, inflation has a relatively slight impact, and there has been general agreement in this area of the Bulletin F pattern anyway. The seven-to-ten-year bracket for durable productive equipment has the almost unanimous support of both the makers and users of such equipment as well as the engineers who are designing the equipment of tomorrow.

Surveys in 1955-56 in two principal areas of metalworking disclosed that not only should the seven-to-ten-year range be adopted because of the new obsolescence factor—but that unless it is adopted purchasers will conclude they simply cannot afford to buy.

Recoup Investment Early—Their recent exposure to five-year amortization as contrasted with their bitter experience under Bulletin F, has convinced purchasers that they must recoup their investment in a relatively short period out of the initial maximum earnings gained from the new productivity and cost savings of the machine.

They are actually concerned about the delay of a ten-year pe-

Replacement Cost Depreciation

To minimize the impact of inflation, numerous proposals have been made in support of the so-called "replacement cost depreciation" method.

This has been strenuously opposed by the Treasury on a number of grounds including: (1) the resulting diminution of revenue, (2) the tax subsidy involved in permitting a taxpayer to write off more than his actual cost, and (3) the discrimination involved in protecting only one class of taxpayers from the ravages of inflation at the expense of others.

Despite the Treasury's objections, the proposal has real merit. The problem is one of political realism since legislation is required. Congress is not likely to let the businessman write off more "cost" than he originally incurred at the time of purchase.

Nevertheless, it has been helpful in proving that unless the Revenue Service abandons its Bulletin F historical approach (which is based on the experience of a deflated depression period) replacement reserves will be inadequate for maintaining the economic health of American industry and modern plants and equipment.

riod, but of one thing they are very sure—they will never be able to buy and replace if they have to use the dollars of 20 or 25 years from now as old Bulletin F prescribed.

It is this same realistic approach expressed in these 1956 surveys which dictates a 20-to-25-year bracket for buildings. Taxpayers may not be strenuously fighting the 40 and 50-year lives of Bulletin F (principally because they have had some "averaging-out" benefit from five-year amortization), but they are not likely to build the plants our expanding economy needs unless something like a 20-to-25-year period is established.

Of course, if these more realistic lives are not adopted, the Government will inevitably have to do what it has done before in recent years to get the facilities the nation needs.

Vicious Cycle—It will have to make tremendous additional investments of tax revenues in productive facilities and once again grant special accelerated amortization, perhaps on a five-year basis. In this vicious cycle both the Government and every taxpayer is the loser.

Government ownership is not only costly but it means the end one day of our free-enterprise system. Special amortization is unavoidably discriminatory in the certification and selection process. It temporarily diminishes tax revenues in critical periods when they are most needed.

Perhaps then we can agree that the bracket ceiling approach has real merit. Of course, this approach is more pragmatic than scientific, but it provides certainty and minimizes all the present errors and inequities. It works "rough justice" and more of it than at present.

It also has the merit of bringing to an end the interminable depreciation controversies which have been going on for years between taxpayers and Revenue agents at the cost of untold millions of wasted dollars and hours of time.

Why More Than Revision Is Needed

▪ The revision and republication of Bulletin F following its present pattern would be a very formidable undertaking. It would be costly to the taxpayers in more ways than one—first, its preparation and second, its impact upon competition.

Practically all of the facilities in the 1942 edition of Bulletin F would have to be reclassified because, in the area of machinery and equipment particularly, the listings now are wholly inaccurate and incomplete.

Depreciable lives would have to be assigned either on the basis of historical studies (which are misleading) or, to include the obsolescence factor, by looking into a crystal ball and speculating and surmising on what the changes in the various industrial arts will be.

As to completely new types of facilities, the Bulletin F drafters will have to proceed as they did before—by guess and by golly.

Controversy Will Continue—When they are all through, what

Continued on Page 72

Depreciation is More Than Wear and Tear

Depreciation allowances are simply compensation for the loss in productive value of an investment in income-producing facilities. Loss results not only from physical wear and tear, but from obsolescence as well.

As a matter of fact, with all the changes in industrial methods, processes, materials and products, obsolescence may well be a more important factor today than wear and tear. Certainly in many areas, such as machine tools, this is true.

Authorities on machine tools agree that the period of economic usefulness of many machine tools today cannot exceed seven to ten years. It does not take much technical learning to know that a modern automatic high-speed machine tool will have outlived its economic utility in terms of accuracies, tolerances and economic operation long before it breaks down and is consigned to the junk heap because of deterioration.

It is clear that an informed prospective purchaser of a machine tool is going to think in terms of recouping his investment in seven to ten years or even sooner.

The Treasury, by its own admission (Bulletin 8 issued Feb. 21, 1955), cannot afford to think any longer in terms of the old Bulletin F physical lives of twenty and twenty-five years on a straight-line basis. If it did, it would discourage today's buyer who will not purchase and produce unless he can recoup his investment over the foreseeable period during which the facility will best produce a reasonable profit on the investment.

This is the seven-to-ten-year period, not the quarter-of-a-century waiting period imposed by old Bulletin F.

Depreciation Over the Years

A little history will show that business as well as the Government has always been somewhat indifferent to the importance and effect of depreciation.

Depreciation appears to have been discovered by American industry for practical purposes about the time of the Civil War. However, no tax reason for depreciation was forthcoming until just prior to World War I when Congress decided to tax corporate income and allowed the deduction of "a reasonable allowance for depreciation of property, if any."

Nevertheless, even though taxes mounted as the United States entered World War I, less than half of the corporations reporting income of over $5,000 in 1917 took any deduction at all for depreciation.

It was not until a decade later that industry finally awoke to the tax savings, limited though they were, which the old straight-line method of depreciation provided. No sooner was industry aware of the necessity for realistic depreciation allowances than the Government, concerned with the resulting diminution of the revenue, issued a ruling in 1934 called T.D. 4422.

This ruling was a double-edged announcement by the Treasury that henceforth the burden of proving the reasonableness of the depreciation deduction would be on the taxpayer, and that property had to be depreciated over a definitive period called its useful physical life.

A new and complete schedule of useful physical lives for all types of depreciable property was subsequently issued in "Bulletin F," with the sole purpose of arbitrarily reducing depreciation allowances so that tax collection would increase.

Some relief from the physical life concept was given some industries when fast tax amortization privileges were put into effect during the 1940's and '50's. Since 1954 a more liberal approach has been taken by the Treasury Dept. with its shift of emphasis from physical to useful life.

PRODUCTION EQUIPMENT: A seven-to-ten year period for the useful life of production equipment has full support of both equipment makers and users. Cincinnati Milling photo.

Continued from Page 71

will they have? Nothing but the Treasury's concept of average useful lives with all doubts resolved presumably in favor of collecting more taxes. The Revenue agents will then consider these lives applicable to everyone despite practically every taxpayer's conviction that they have no application at all. The interminable controversy will go on and the framers of the new Bulletin F will simply have confused activity with accomplishment.

With all the apparent obstacles and disadvantages entailed in a revision of Bulletin F it hardly seems a worthwhile solution to industry's depreciation problems.

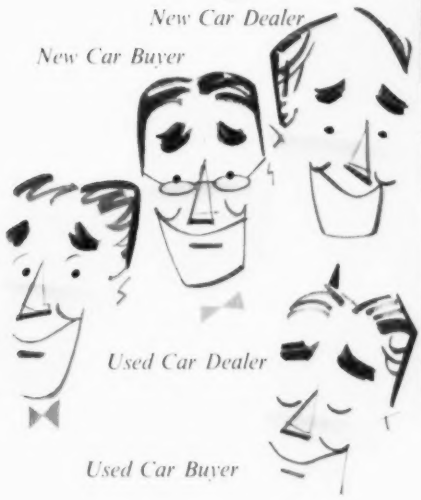
This can all be avoided by adopting the bracket ceiling method already proposed. Probably most important of all, it will solve the problem of the smaller companies and taxpayers who have been at a disadvantage under the old Bulletin F.

Careful consideration of this approach should be given now by all taxpayers and the Commissioner before any decision is reached to reissue Bulletin F.

It seems inevitable that something like this type of tax depreciation will ultimately be adopted. The successful pattern of five-year amortization and comparable practices in other countries mark the trend.

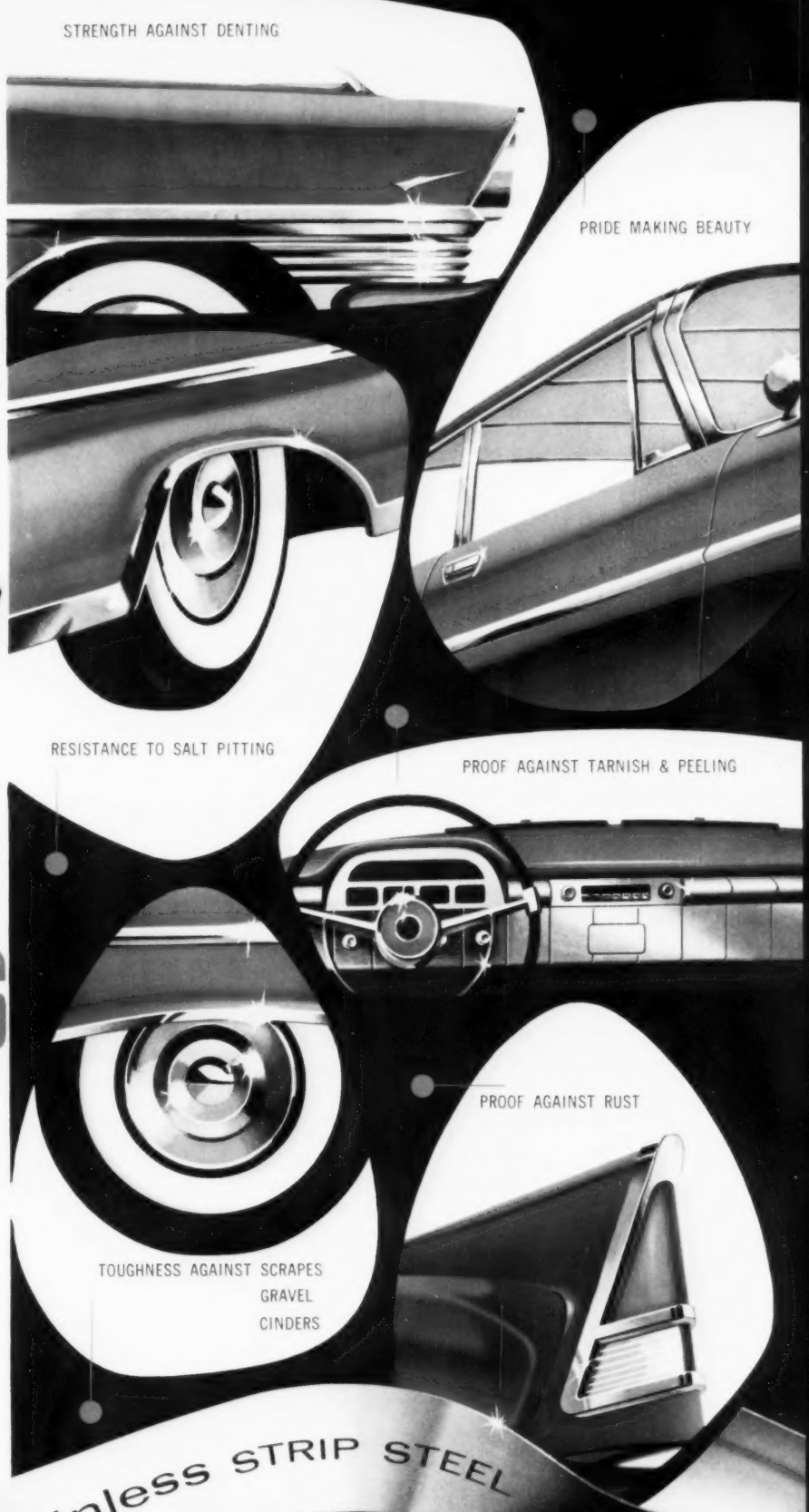
Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., THE IRON AGE, Chestnut & 56th St., Philadelphia 39, Pa.

Everybody's happy



with Automobile trim of Stainless Steel

On the showroom floor—on the highway—in and out of the used car lot—all the way to the ultimate owner, *stainless steel* pleases everyone! Stainless keeps selling itself because it's *the metal that does not deteriorate.* Always bright. Always beautiful. So easy to care for. *So satisfying to find on your car.*



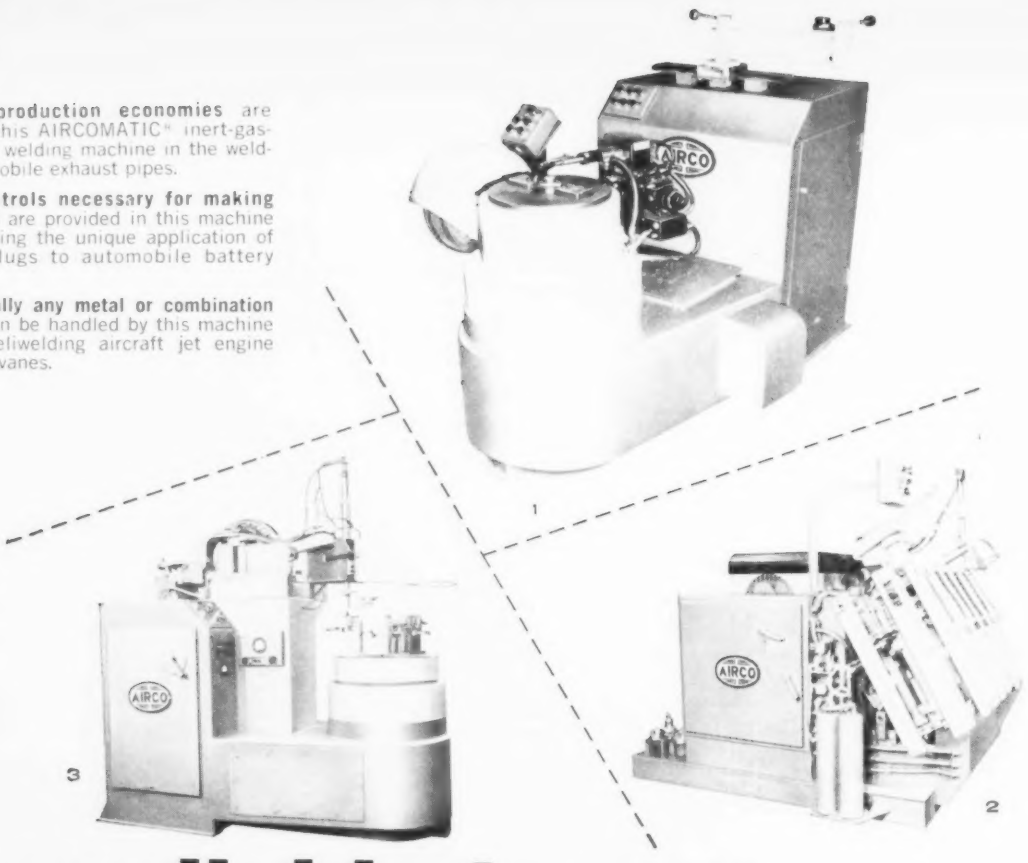
Superior Stainless STRIP STEEL

Superior Steel
CORPORATION
CARNEGIE, PENNSYLVANIA

1 **Many production economies** are offered by this AIRCOMATIC® inert-gas-shielded arc welding machine in the welding of automobile exhaust pipes.

2 **All controls necessary for making sound welds** are provided in this machine for Heliwelding the unique application of aluminum lugs to automobile battery cables.

3 **Practically any metal or combination of metals** can be handled by this machine used for Heliwelding aircraft jet engine turbine exit vanes.



available to you...

A completely packaged "welding-and-engineering" service

Airco's Machine Welding Department custom engineers automatic welding operations to your product design—accepts all responsibility for: welding processes, machine design, production procedures, installation, operating efficiency!

Airco's Machine Welding Department gives you practical guidance and assistance when you are considering semi-automatic or automatic welding operations in your plant or shop. The 36 projects already completed comprise a wide range of automatic welding applications.

No matter how large or small the job, Airco engineers are prepared to help you evaluate the various welding processes, select the most suitable machines and equipment for your job and develop efficient production-line procedures.

You get a completely engineered "package" from one source. You avoid cost of process studies, the confusion of dealing with numerous suppliers of component parts, the time wasted in working the "bugs" out of your automatic welding installation. Airco's Machine Welding Department co-ordinates processes, procedures and machines for smooth efficient operation. They will design, construct and install jigs and fixtures that will meet your manufacturing specifications at the lowest possible cost.

Learn how you can solve your production problems with a custom engineered automatic welding package at reduced cost. Write to: J. H. Berryman, Machine Welding Department, Air Reduction Sales Company, (address below), for complete information.

welding
AT THE FRONTIERS OF PROGRESS YOU'LL FIND . . .

AIRCO®

Offices and dealers in most principal cities

AIR REDUCTION SALES COMPANY

A division of Air Reduction Company, Incorporated
150 East 42nd Street, New York 17, N. Y.

On the west coast —
Air Reduction Pacific Company

Internationally —
Airco Company International

In Cuba —
Cuban Air Products Corporation

In Canada —
Air Reduction Canada Limited

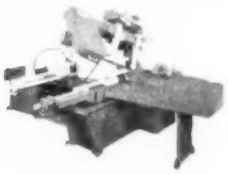
Products of the divisions of Air Reduction Company, Incorporated, include: **AIRCO** — industrial gases, welding and cutting equipment, and acetylenic chemicals • **PURECO** — carbon dioxide — gaseous, liquid, solid ("DRY-ICE") • **OHIO** — medical gases and hospital equipment • **NATIONAL CARBIDE** — pipeline acetylene and calcium carbide • **COLTON** — polyvinyl acetate, alcohols, and other synthetic resins.

New from DoALL...

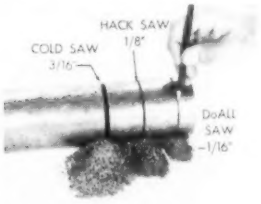
The First Low Cost, High Efficiency Cut-off Saw specially designed for Demon high speed steel Saw Bands

DoALL DEMON BLADES cut sawing costs 50% or more

The *red heat* hardness of high speed steel saw slices through steel—outlasting and outperforming any other band tool.



Model C-58 *automatic* Cut-off Machine . . . for accurate *sustained* production cut-off. Automatic indexing. Inf. variable speeds. Any type of material to 12" x 12". Standard index to 24"; multiple index available.



Big Material Savings Pay Tool Cost

Thin Demon blade reduces stock waste, pays its way in longer life and raw material "bonus"

Saves money in any shop—faster work, smaller investment, lower operating cost

Now *any shop* can afford the speed and economy of cut-off band sawing. The new DoALL Model C-12 is built with the rigidity, feed control and coolant system needed for Demon high-speed steel blades—blades that will withstand cutting speeds and pressure temperatures of up to 1100° without losing tooth hardness—blades that will cut up to 6 times faster and last up to 10 times longer than carbon steel blades.

Here's what this can mean to you: The DoALL C-12 will cut up to *twice* as fast as a comparable power hack saw and up to *three* times as fast as any band saw of comparable capacity. Both tool cost *and* initial cost are less than a power hack saw and far less than a cold saw. And the thin kerf of the Demon blade gives you a "material saved" bonus that mounts with every cut taken—for the *life of the machine.*

But the big saving is in labor time. The C-12 is a practical, rugged, easy to operate machine designed and priced for economical operation—even on part time. Stock handling equipment optional. Write for details today on this fast, dependable, low cost machine or phone your local DoALL sales service store for a demonstration.

For Lowest Cost Per Cut—*do it on a DoALL!*

DoALL **The DoALL Company**
Des Plaines, Illinois

WRITE FOR LITERATURE
on new C-12 or for "Power Sawing Handbook".

Call Your DoALL Service-Store

PS-6

Friendly DoALL Stores in 38 cities give you personalized service and local delivery from complete stocks.

AUTOMOTIVE

Edsel Starts Producing July 15

First Year Output Set at 200,000 Cars

Pilot production runs are reported successful on this newest addition to the Ford line.

Company is ironing out details for establishing 1200 dealerships.—By T. L. Carry.

■ Bringing out a new model of an established automobile is a task that takes anywhere from 3 to 4 years from the planning stage to actual production of the car.

It is, however, a continuing process and work on new models in the industry is sometimes overlapping. Thus, the job of product-planning might not seem as herculean as it actually is. But it is a far different story for any company starting from scratch to bring out several models of a brand new car.

Long Planning Stage — Ford Motor Co. was faced with such a task. After literally years of planning, it will introduce a new model, the Edsel, in the upper medium price-line this year.

How does a company go about planning a completely new car?

SCOTSMAN ARRIVES: Auto industry's newest competitor is the Studebaker Scotsman. Two-door sedan sells for under $1800.

WAGON ECONOMY: Studebaker Scotsman station wagon is one of three models offered. It has 101 hp engine, can seat six.

In Ford's case, the Edsel has been in the planning stage for 9 years. Back in 1948 the company started a study of the automobile market and found that, if it was to continue to grow, it needed another car to fill out its product line.

Helping Competitors — According to Henry Ford II, market studies at that time indicated that as family income rises, car buyers have a tendency to trade up when purchasing a new auto. Also in most cases, customers tend to buy more expensive cars made by the same company.

Thus, the study showed that, as far as Ford was concerned, it was growing customers for other companies. People who owned Fords could easily buy a Mercury but after that, they had to switch to another company.

Four Main Points — The choice for the company was obvious. Ford needed another car for broader coverage of the market in order to give customers on the way up a wider choice.

This was only the beginning of the task. Ford set its target through a market study and once the type of car was decided, work began in earnest. It was broadly along four lines — styling, engineering, manufacturing and sales.

A Mercury Body — Because the Edsel is a new car, there is not much known about its styling at this time. Prototype models have been seen on the street and it is obvious from a quick glance that the Edsel does belong to the Ford family of cars. Its grill is vertical rather than horizontal. The rear quarter panel has a sculptured ef-

How Great Lakes Steel *inspects scrap* quality

Two things don't belong in this gondola—and a team of trained Great Lakes Steel scrap inspectors is searching them out. The intruders are *non-ferrous material* and *high sulphur content ferrous material*, which contaminate heats and spoil the quality of finished steel.

Additional visual inspection in the stockhouse and on the open-hearth floor, magnetic screening, and weight checks all combine to detect and eliminate these adulterants, before the scrap is fit to become a part of Great Lakes steel.

Sound like a lot of trouble? It's worth it, to us and to our customers. And it's just one more step in Great Lakes Steel's continuing program of quality control that assures you the finest steels. Make it a point to contact your Great Lakes Steel representative for the rest of the story. He's as close as your telephone.

Here approved scrap, in charging boxes on buggies, heads for the open hearths. Quality scrap gives finished steel improved surface and ductility characteristics.

GREAT LAKES STEEL CORPORATION

Detroit 29, Michigan • Division of

NATIONAL STEEL CORPORATION

District Sales Offices: Boston, Chicago, Cincinnati, Cleveland, Grand Rapids, Houston, Indianapolis, Lansing, Los Angeles, New York City, Philadelphia, Pittsburgh, Rochester, St. Louis, San Francisco, Toledo, Toronto.

There's a Good Reason why

ZINC DIE CASTINGS

are so widely used

...at HOOVER

...IT'S

DUCTILITY

The straight die casting (at top) is put into production without any machining. The bristles are fastened in place and the forming operation twists the bar to the proper curvature for installation on the agitator.

Design engineers at The Hoover Company found that DUCTILITY provided the necessary answer to their problem of using ZINC Die Castings in the agitator of the upright electric vacuum cleaner.

Because of the helical contour of the brush, the metal back could not be die cast to the required shape since the anchoring holes for the bristles would not be parallel to the motion of the die. The problem was neatly solved by a die caster who knew how to use the exceptional qualities of ZINC Die Castings.

The brush backs were cast straight, the bristles anchored in the holes and the castings were then cold formed approximately 115° to give the necessary helical contour. Even with the extra forming operation, die casting proved to be the most economical method of production since no machining was necessary.

Ductility is just one of the many physical and mechanical advantages that make ZINC Die Castings so widely used by manufacturers who want the best product with lowest costs of parts and assemblies.

ZINC
FOR DIE CASTING ALLOYS

THE NEW JERSEY ZINC COMPANY *160 Front Street, New York 38, N. Y.*

The research was done and the Zamak die casting alloys were developed with

HORSE HEAD SPECIAL (99.99 + % Uniform Quality) ZINC

Automotive Production

WEEK ENDING	CARS	TRUCKS
June 1, 1957	81,625	17,626
May 25, 1957	127,428	23,407
June 2, 1956	77,433	17,466
May 26, 1956	108,126	21,678
TO DATE 1957	2,782,500	482,900
TO DATE 1956	2,778,600	512,300

*Estimated. Source: *Ward's Reports*

fect due to a large scooped out area low on the fender.

Other than that, there is not much that can be said for the car's looks. However, it is no secret that the Edsel will use a Mercury body shell and for a good reason.

July 15 Kickoff — Automotive engineers know the advantages inherent in the interchangeability of parts for various cars. It is a money-saving device which was first begun by General Motors Corp., and has since been copied by other manufacturers. The Edsel is no exception.

Manufacturing plans call for the car to go into production July 15 in six Ford assembly plants across the nation. These are located at Somerville, Mass., Mahwah, N. J., Wayne, Mich., Louisville, Ky., San Jose and Los Angeles, Calif.

Dealers Plentiful—Pilot production runs have already been conducted in the New Jersey plant and, according to the company, have proven successful. One of the most important parts of Edsel's planning has been the establishment of a separate dealer organization to sell and service the car.

Since the first announcement of the car, the division received over 4000 inquiries regarding franchises. Almost 40 pct of these were from dealers who were already selling Ford's line of cars.

Actually, the company figured that it would only receive about 2000 inquiries about dealerships and it was overwhelmed at the response it received.

Present plans call for the establishment of 1200 dealerships by the time the car is introduced. Later, if sales volume justifies it, the company will select additional dealers.

Production of the first year has been set at 200,000 cars, and undoubtedly can be increased if necessary.

Auto Engineering Enters New Era

The automotive industry is on the threshold of a new era in scientific and engineering progress, according to Dr. Andrew A. Kucher, vice president of Ford's engineering and research. Dr. Kucher outlined some of the things that will happen in industry research within the next few years.

Four Major Metals — He points out that development of the modern automobile has reached the stage where further advances will not be accomplished by trial and error alone. Future refinements, Dr. Kucher says, will demand a high caliber of scientific knowledge.

One basic area where research will soon pay off is in metals. The Ford executive says that the future of inorganic materials will be limited largely to — iron, aluminum, magnesium and titanium metals.

Stronger Steels—Other elements, he says, are becoming scarcer and as a result too costly to use even as alloying agents.

He also believes that materials will be developed that can easily be used in the 2000° to 3000° F range. Metals in general will be produced to realize a bigger fraction of their theoretical strength. For example, the theoretical strength of present-day steels may be raised from 100,000 lb psi to 1 million lb psi. The result will be lighter and stronger structures.

The Woman's Touch — Recent studies have shown that women's influences on the automobile is limited to far more these days than backseat driving.

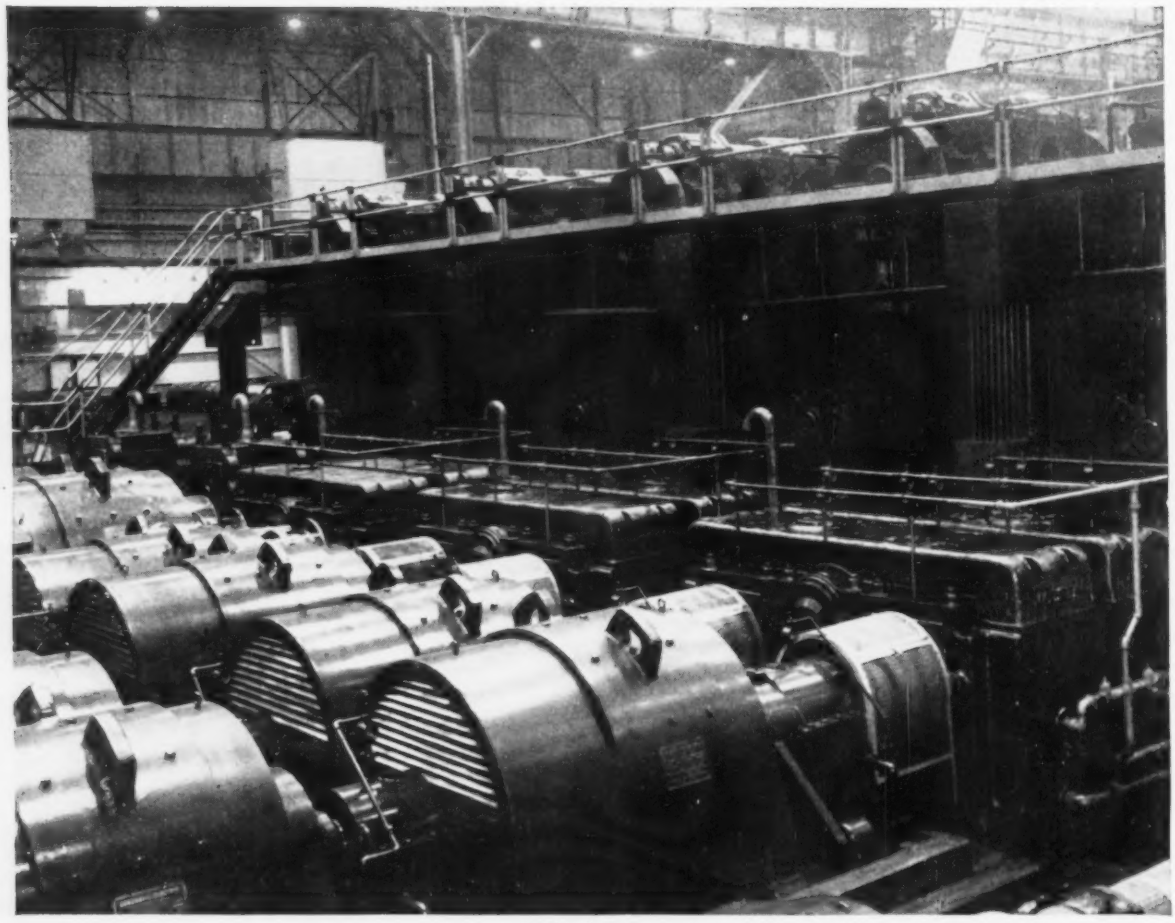
General Motors styling staff says that women cast the deciding vote in the purchase of 7 out of every 10 cars sold.

The company has many female designers on its styling staff.

Harley Earl, GM vice president in charge of styling, credits the women designers with many of the innovations on today's cars.

THE BULL OF THE WOODS — By J. R. Williams

IS THIS A TIME TO LAUGH? A GUY GITS NEAR KILLED AN' YOU'RE SHAKIN' WITH LAUGHTER!
I'M SHAKIN' WITH SOBS! LOOK WHAT YOU'VE DONE TO MY JOB, SITTIN' THERE ON A RUNNIN' LATHE WITH ONE O' THEM HANGIN'-OUT SPORT SHIRTS!
FROM ALL I'VE SEEN I BET MOST PEOPLE WORRY 'BOUT BEIN' LAUGHED AT EVEN AFTER THEY'RE BURIED!
SURE! EVEN A COMEDIAN MUST, CUZ HE CAN'T TELL WOT KIND OF LAUGHS THEY ARE TILL PAY DAY! THERE'S ALL KINDS FROM GIGGLES TO HORSE LAUGHS!
J.R.WILLIAMS
LIFE'S LONGEST MINUTE



These mill pinion stands are driving a Mesta Five-Stand Tandem Cold Reduction Mill.

Why additives in Texaco Meropa assure adequate "Boundary Lubrication" of heavy duty gears

Special polar additives in *Texaco Meropa Lubricant* are attracted to metal surfaces with a powerful bond. This means that under the great pressures of shock loads, when the fluid oil film is squeezed out from between gear teeth, an adequate "boundary lubrication" film still remains—effective protection against scoring, ridging, or scuffing of metal. And extreme pressure properties in *Texaco Meropa* give it added toughness—help it safely cushion shock or heavy-duty loads.

These are good reasons why *Texaco Meropa Lubricant* helps increase gear life, minimize wear and reduce maintenance costs.

There is a full line of *Texaco Meropa Lubricants* designed to exceed all requirements of main drive units, and other steel mill machinery. A trained Texaco Lubrication Engineer is best qualified to suggest the right one for your operating conditions. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Meropa Lubricants

FOR STEEL MILL GEAR DRIVES

Military Budget Cut Is Certain

A Seven Pct Slash May Be Coming

In the halls of Congress, they're saying Eisenhower was sold a bill of goods by the Pentagon.

Rep. Mahon, swinging the economy axe, points up excesses in military spending.—By G. H. Baker.

■ A lower rate of military spending shapes up more and more as a definite probability, not just a possibility. A growing list of congressmen is demanding that the Army, Navy, and Air Force give up some of their frills and learn to get along on slightly fewer dollars.

The trend is a direct reflection of the public's caution this year in its spending habits. The temper of the times is economy. Certainly there is no depression in sight or even anything remotely resembling a recession. But people are tending to trim their spending plans this year, and they naturally believe their government should do likewise.

Consumers Buy Less—As any homebuilding contractor will tell you, sales of new homes this year are at the slowest rate in years. General Motors now reluctantly predicts sales of new cars probably won't total much over 5.8 million units this year—considerably down from early predictions of 6.8 and later 6.2 million units. Sales of furniture and household appliances are fair, but way under earlier hopes.

As a result of this feeling, the chairman of the House military appropriations subcommittee (Rep. George H. Mahon, D., Tex.) drew an unusual round of handclapping on the floor of the House recently when he told his colleagues he'd looked over the Army-Navy-Air Force spending plans for the new fiscal year (to start July 1) and found that cuts totaling 7 pct could be safely made.

Ike Misinformed?—Rep. Mahon and his colleagues on the appropriations subcommittee (who spent several weeks early this year interrogating generals and admirals in detail on the budget) told the House they now believe President Eisenhower is misinformed when he says any cuts in the military budget would "jeopardize U. S. security."

Is the military security of the United States honestly jeopardized, they ask, when funds are chopped off such projects as new Cadillacs for military brass hats, fewer hunting lodges for generals, and money is denied branches of the service that want to duplicate—or even triplicate—projects already under way?

Off the Record—In the cloakrooms, men of long standing in the House will tell you that President Eisenhower would do well to accept the "go slow" philosophy that the voters seem to demand.

Lawmaking: Round 2 in the Union Probe

The First Step—Congress, after chewing through several months of sensational digging into union scandals, is getting down to the serious business of legal remedies.

Hearings are now underway before the House Labor Committee. They're aimed at finding out how to prevent the pillaging of union welfare funds. It's the first step in what may eventually be a full packet of tough laws to keep labor union bosses from abusing their powers.

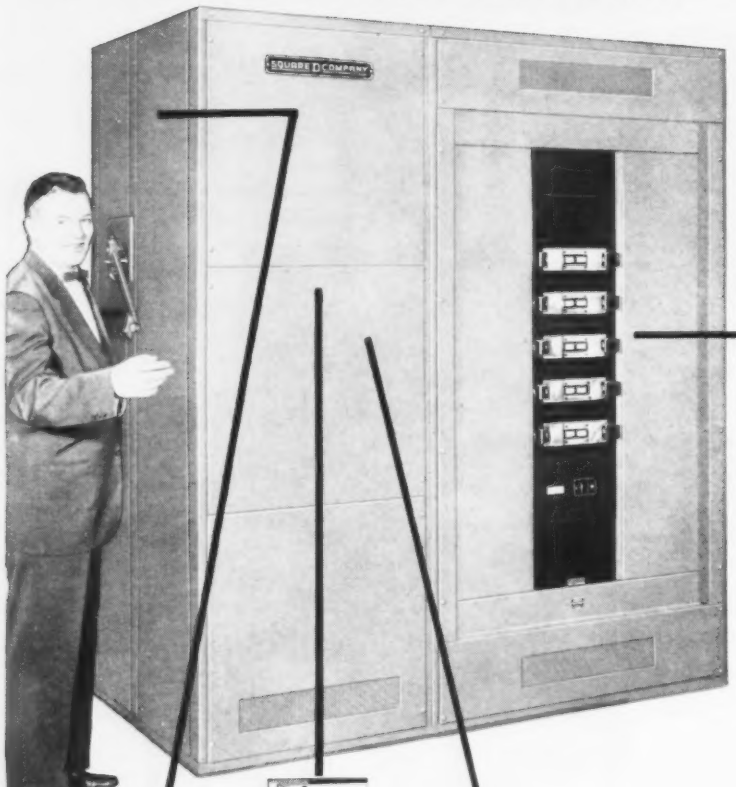
Seek Expert Opinions—Authorities in the banking and insurance fields are being called on for advice as to how union funds can be invested and protected. Rep. Graham Barden, D., N. C., the committee chairman, is hoping to be able to write some "rules of conduct" to protect the nearly $40 billion in union funds.

The Administration is asking Congress to grant the Labor Department broad power to investigate fund financial records and to seek criminal penalties for their falsification or destruction. Under the plan, union fund managers —business, union, or outsiders— would be required to register their funds with the Department and to file annual financial reports, which would be made public and subject to scrutiny.

Business Objects—The reporting plan has drawn some criticism from business as well as the unions. Some businessmen say the proposal would require firms to publicize the kind of information on salaries and fees which top labor has "dreamed of possessing—a look at the books with the authority of federal government behind it."

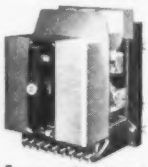
Generally, however, the proposals have strong support, and appear likely to pass either this year or next. So far, there is little support for legislation to make unions subject to the antitrust laws.

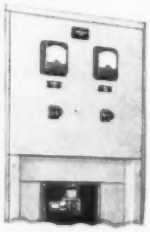
SQUARE D's NEW Unit Substation IN POWER-STYLE CONSTRUCTION



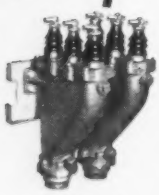
Designed to match Square D's Power-Style switchboards and control centers, these new Unit Substations meet NEMA, ASA, and AIEE standards. Available from 75 to 500 KVA; in primary voltages up to 4800V; secondary up to 600V.

Molded case circuit breakers (*left*) up to 800 amperes and QMB Saflex fusible switches (*right*) up to 600 amperes are available in compact panel construction.

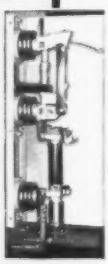




Large air circuit breaker (*above*) up to 1600 amps can be combined with a short panel in one section.



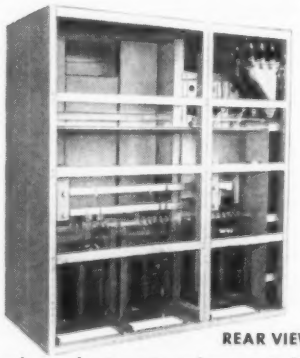
Pothead



Interrupter Switch

Cutout

Potheads, fused or unfused load break air-interrupter switches and fused or unfused oil-filled cutouts are available. Air-interrupter switches and cutouts are easily accessible from front of Substation.

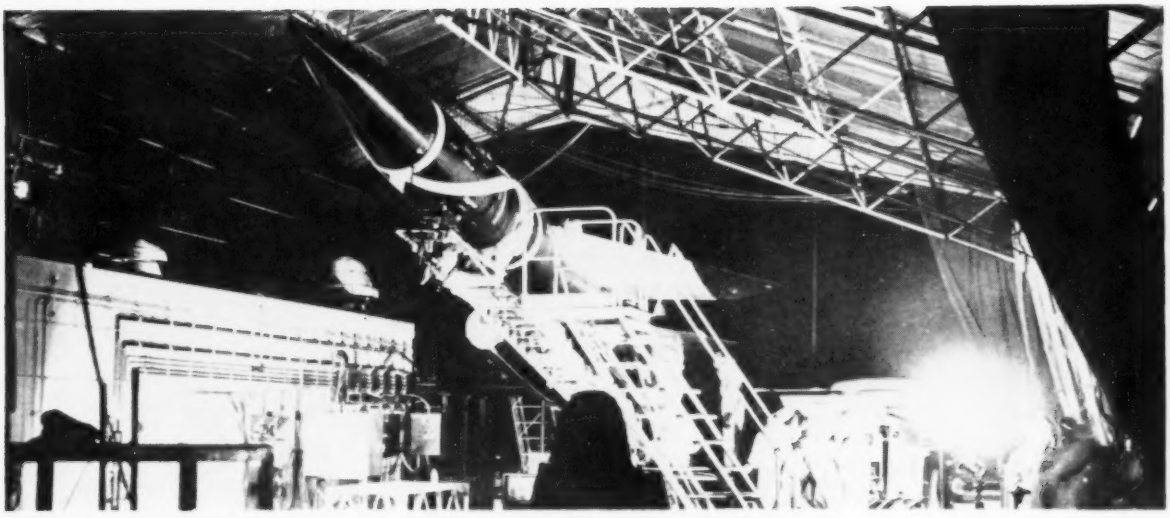


REAR VIEW

3 single phase, dry-type transformers individually mounted on base in ventilated enclosure—heating and vibration held to a minimum. Transformers easily accessible for maintenance and inspection. When no air circuit breaker or metering equipment is used, entire area at top left is available for pull box.

NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!

SQUARE D COMPANY



SUPERSONIC DEFENSE: Being readied for test is Boeing's Bomarc IM-99, anti-aircraft guided missile.

Seattle Planemakers Stay Busy

Any word that Boeing's operations in that area would be curtailed can be ignored.

Production of B-52s, commercial jetliners and missiles will keep firm and its suppliers active —By R. R. Kay.

■ Discount talk that Boeing Airplane Co.'s Seattle-area business is on the way down. It's not. And that's good news for thousands of aircraft-industry suppliers all over the U. S. They'll continue to get a big share of Boeing's $3 billion backlog.

The U. S. Air Force is far from junking production of the B-52 bomber, the round-the-world-in-45-hours plane. USAF is only stretching out delivery dates on the $8 million ship.

Busy on the Bomarc—The new production pace of 15 per month instead of 20 will keep things humming around Seattle through 1959. Boeing has some 600 B-52s and KC-135 tankers on order, plus commercial jetliners and Bomarc missile production.

Although the USAF stretched out B-52 deliveries, the hassle over that plane vs. Convair's B-58 Hustler is just a side-show. The real battle is shaping up over Hustlers vs. the much-talked-about WS-110A chemical bomber. Boeing and North American Aviation, Los Angeles, both hold USAF study contracts on this revolutionary bomber.

Both Seattle and Washington State have a big stake in the Boeing program. The company employs over 56,000 people in the Seattle area.

Business Forecast: Continued Fair

Doing business in California? Well, here's good news. Sixty-five per cent of California banking executives think business in the last half of this year will hold at present levels. Twenty-four per cent say it will be better than now; and only eleven per cent think it will decline. That's what the San Francisco News found out in a recent poll.

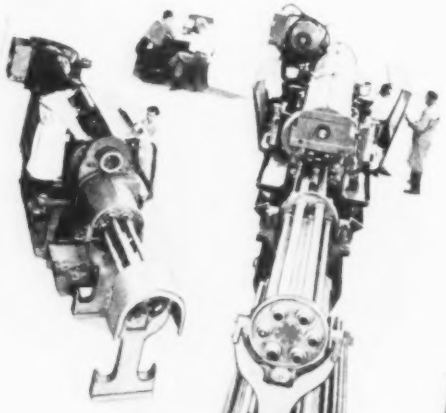
And if you're keeping an eye on retail markets, note this: it now looks as if the Los Angeles-Long Beach metropolitan area is nosing out Chicago as the country's No. 2 consumer products buying area.

Expansion Funds Double—Experts at Security-First National Bank of Los Angeles report last year's retail buying hit $8.6 billion vs. Chicago's $8.5 billion. This year's business pace should really widen the gap. Reason: employment and population are growing at a faster rate in Los Angeles-Long Beach than in Chicago.

Northern California's 48 counties report $226 million earmarked for 184 new and expanding plants. That's for the first quarter, and it's double the amount for the like period last year.

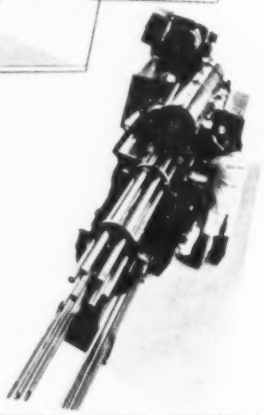
In Washington State, too, things are humming. Total employment is nudging the one million mark for the first time.

If you haven't read this important booklet, your production line may be operating at less than peak efficiency. Your operations may be beating competition with HSS today, but you will likely need carbide tooling to be the leader tomorrow.



CONE WITH FOUR STEPS

CONOMATIC CARBIDE DEVELOPMENT



Write for your free copy of this important booklet today!

Conomatic

CONE AUTOMATIC MACHINE COMPANY, INC., WINDSOR, VT., U. S. A.

AGMA ELECTS: (l. to r.) President, LeRoy R. Brooks, Tool Steel Gear & Pinion Co., Cincinnati; Vice Pres., E. F. Borisch, Milwaukee Gear Co.; Treasurer, John L. Buehler, Indiana Gear Works, Inc., Indianapolis.

Where Numerical Control Pays

Numerical controls on machining operations are often getting more credit than they deserve, says expert.

However, in complex contouring and reducing setup time they offer important advantages.— By E. J. Egan, Jr.

■ It's apt to be quite awhile before your everyday machining operations are numerically controlled. According to Claude D. Coffin, senior electrical engineer for Cleveland's Warner & Swasey Co., many equipment builders are still asking themselves: "Why should we put numerical controls on machinery?"

Mr. Coffin told the ASME's Design Engineering Conference in New York that "numerical controls have a place and should be used." But he added, "Many of the gains credited to numerical control really arise from automatic operation only . . . and automatic operation certainly can be obtained by other means than numerical control."

Exploding Some Fallacies — He mentioned that many numerically controlled machines have been widely publicized because their automatic-cycling features eliminate manual operations.

"In some cases," he states, "the same automatic operation with the same time cycle could have been obtained with equal efficiency through use of the well-known techniques of limit switches and relays."

Nor is it true, he added, that a numerically controlled machine can, by some miracle, cut metal faster than a conventional type. "The limit of how fast a cutter can move through metal is still determined by cutter life and horsepower supplied," he reminded listeners.

Advantages Pinpointed — After blasting the more fanciful numerical control theories to ground level, Mr. Coffin plotted two areas where he thinks the concept can be realistically applied.

One involves the machining of complex contours, such as occur in aircraft wings and spars. Many complex shapes require a degree of accuracy that defies the use of multiple templates, except at great cost. In such cases, the positive-dimension commands issued by numerical controls can more than justify the expense, he averred.

The second area could include any operation where zero time for setting up cycle controls would save important money. As Mr. Coffin pointed out, by reducing control setup time a machine can make more parts in a given amount of time; parts can be made in smaller lots without difficulty; and the machine's owner can operate with a smaller parts inventory.

INDUSTRIAL BRIEFS

Stainless Reputation — Eureka Metals Co., Los Angeles, has been appointed a distributor for U. S. Steel Corp.'s Stainless Steel Div. Eureka also distributes the stainless steel products of Jessop Steel Co., Joslyn Steel Co., Sharon Steel Corp., and Washington Steel Corp.

Off to Buffalo — Gibraltar Steel Corp. will start construction soon of a $250,000 warehouse and office building on a 13-acre tract in Cheektowaga, N. Y., a suburb of Buffalo. The company, which warehouses sheet, coil and plate steel, has moved its headquarters to Cheektowaga from Detroit.

White Buys Reo—White Motor Co., Cleveland, will purchase Reo Motors Inc., Lansing, Mich. Purchase of Reo will enlarge its share of the 14,001 to 19,500-lb gross vehicle weight truck field. Transaction included payment of an undisclosed amount to Bohn Aluminum & Brass Corp., Detroit which controlled Reo stock. Through addition of Reo, operating as a division, White expects to increase its share of national truck sales from the present 17 pct to 20 pct.

With Honors — Dr. Victor R. Deitz, national authority on solid adsorbents, has received the Guggenheim Fellowship award and the Dept. of Commerce Silver Medal. The Fellowship will permit Dr. Deitz to continue his studies in London. The Silver Medal, recognizes his contributions to science and technology and meritorious authorship.

Heat for New England — A $500,000 furnace facility is being constructed for the General Electric Co.'s Small Aircraft Engine Dept. at Everett, Mass. It will contain six electric and gas fired furnaces along with various producing and purification equipment. The facility is designed for the solution treating, age hardening, stress relieving and brazing of jet engine components.

Glasses for Welders—Air Reduction Sales Co. has announced the availability of the first flash goggles with prescription lenses. The goggles are for wear under the welding helmet or hand shield in inert-gas-shielded, metal-arc welding, as recommended in the safety standards of the American Welding Society.

Atom Smasher — Westinghouse Electric Corp. will supply electrical equipment to power a huge atom smasher now under construction at the Brookhaven National Laboratory on Long Island, N. Y. Totaling about $1 million in cost, the equipment will feed power to 240 magnet cores which are arranged in a ring 842 ft in diameter. Around this ring will speed protons (positively charged atomic particles) with energies of 25 to 30 billion electron-volts.

Into Suburbia—A manufacturing plant for the production of industrial wire cloth and wire mesh conveyors will be erected for Hewitt-Robins, Inc., at King-of-Prussia, Pa. The new plant will provide enlarged and modernized facilities to replace those now located in Philadelphia.

Meet the Demand — Monsanto Chemical Co., St. Louis, has doubled its production capacity for bisphenol A, a resin intermediate used in the manufacture of epoxy resins and oil-soluble phenolic resins. Domestic production of these resins in 1956 totaled 30 million lbs, an increase of more than 50 pct over the 1955 U. S. output.

Up Periscope—The U. S. Navy has awarded two contracts costing about $2 million to Westinghouse Electric Corp. to develop a new submarine weapons system. The company will start a development program for a high speed torpedo, its fire control system and related components. The torpedo will be capable of destroying submarines as well as surface vessels.

Casting Contract—Arwood Precision Casting Corp., New York, is expanding its West Coast operations into the aircraft, rocket and missile companies plus western industrial expansion for nonferrous castings and steel. Arwood has completed negotiations for purchase of Duncan-Rohne Co. and Malco Metal Products Co. of N. Hollywood. Both companies will continue to operate at the N. Hollywood location as subsidiaries of Arwood.

Room for Ryan—Ryan Aeronautical Co., San Diego, has acquired an assembly plant and 27-acre industrial site adjacent to the Torrance Municipal Airport. The plant will be used for assembly operations on major projects such as the Douglas DC-8 commercial jet airliner power packages and pylons, and the Ryan Firebee jet drone missile. Engineering and fabrication work on these and future projects assembled in the Los Angeles plant will be performed in San Diego, where it is continuing its employment expansion.

Lift to London — The London Concrete Machinery Co., Ltd., London, Ont., Canada, has been licensed to manufacture Buck Portable Hoisting Machines for the building and maintenance industries. The machines are used as elevators for raising building and maintenance materials.

J&L cold drawn ELECTRICWELD tubing with a superior SPECIAL SMOOTH I.D. finish

Cold drawn ELECTRICWELD tubing with the superior smooth I.D. finish will cut your production costs in applications like these:

cylinder tubing
hydraulic and pressure tubing
shock absorbers
ordnance components

This new drawn-over-mandrel grade tubing with its mirror-like surface finish helps reduce or eliminate costly machining on many applications. For example, it may be used, without inside honing, for many cylinders through which plungers are passed.

ELECTRICWELD tubing withstands high internal hydrostatic pressures; carries heavy torsion loads; resists high-frequency vibration. It offers a favorable weight-to-strength ratio where loading occurs in all directions.

It is furnished in OD sizes from ½ inch to 2⅞ inches and in wall thickness from 20 to 10 gauge, 0.035 and 0.134 inch. Send coupon today for complete information.

Jones & Laughlin Steel Corporation
Dept. 403, 3 Gateway Center
Pittsburgh 30, Pennsylvania

Send me a copy of your cold drawn ELECTRICWELD tubing booklet.

Name_____

Title_____

Company_____

Address_____

City_____ Zone___ State____

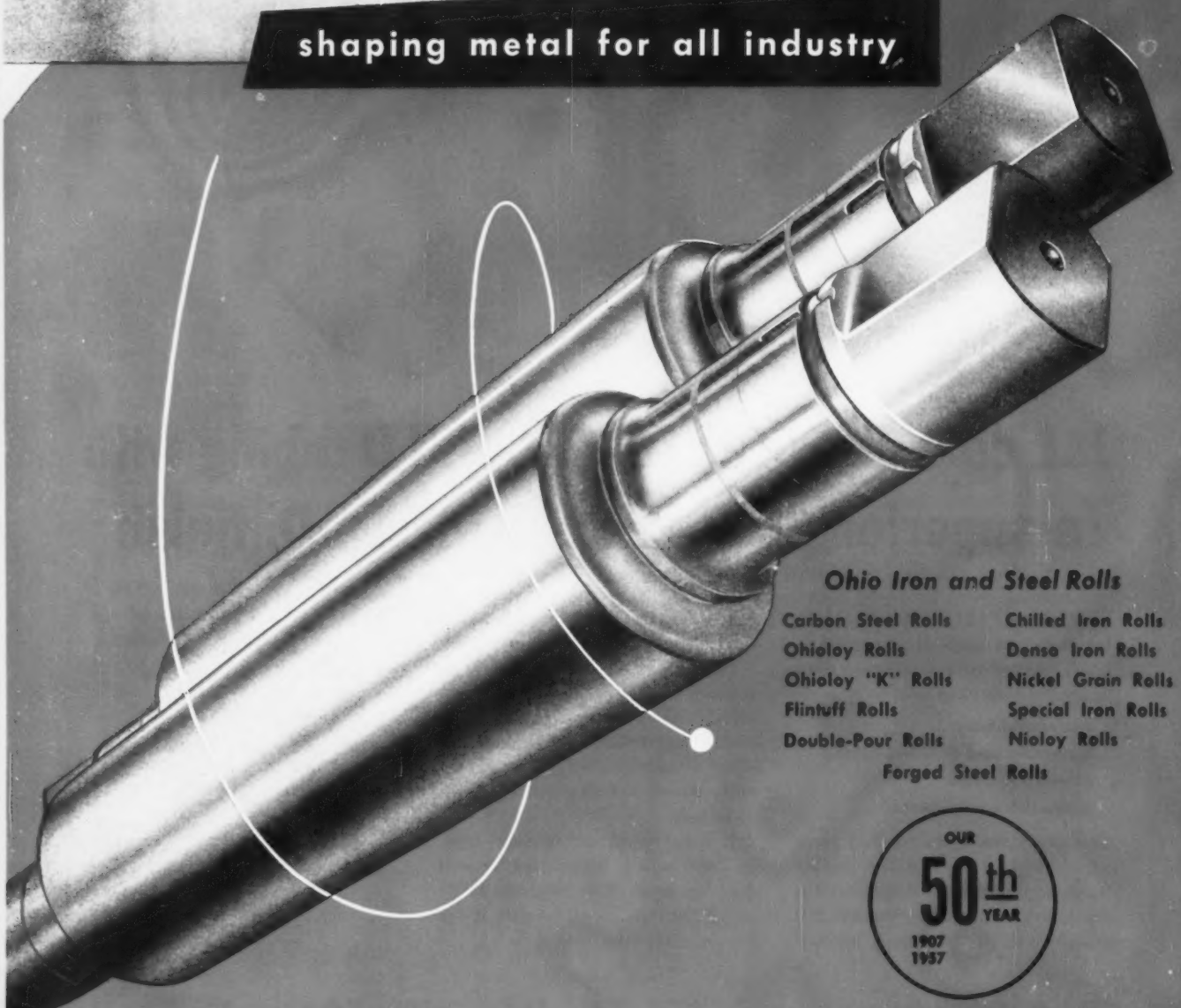
J&L STEEL

Jones & Laughlin

... a great name in steel

Ohio Rolls

shaping metal for all industry



Ohio Iron and Steel Rolls

Carbon Steel Rolls	Chilled Iron Rolls
Ohioloy Rolls	Dense Iron Rolls
Ohioloy "K" Rolls	Nickel Grain Rolls
Flintuff Rolls	Special Iron Rolls
Double-Pour Rolls	Nioloy Rolls

Forged Steel Rolls

OUR 50th YEAR
1907
1937

THE OHIO STEEL FOUNDRY CO.
LIMA, OHIO

Plants at Lima and Springfield, Ohio

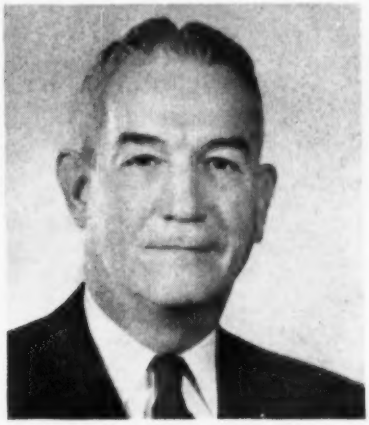
ORS

Fred N. Rushton, elected president and **William M. Waugh,** elected treasurer, The Washington Aluminum Co., Baltimore, Md.

S. C. Amren, elected vice president, manufacturing, Charles Bruning Co., Inc., Chicago.

Herbert M. Weed, named asst. to executive vice president, Anaconda Sales Co., New York.

Sam Kreger, appointed controller, Rolled Steel Corp., Skokie, Ill.



Horace Y. Bassett, elected president and chief executive officer, Calumet & Hecla, Inc.

D. F. Dimock, named mideastern regional manager, National Electric Products Corp.; **H. E. Colliver,** named midwestern regional manager.

Earl V. Akerlow, named division manager, Engineering Dept., Kaiser Engineers, Oakland, Calif.

Endicott R. Lovell, named chairman of the board and executive committee, Calumet & Hecla, Inc.

George W. Stamm, elected vice president and general manager of sales, Crucible Steel Co. of America, Pittsburgh.

Allan D. Blackledge, named asst. manager, Cameron Iron Works, Inc., Houston, Texas; **J. W. Brougher,** named manager, Special Products Dept.

Elmer H. Fredrickson, named export sales manager, Austin-Western Works, Construction Equipment Div., Baldwin - Lima - Hamilton Corp., Aurora, Ill.

Harry L. Gaddis, appointed superintendent Railroad Wheel Works Dept., Butler Works, Armco Steel Corp.

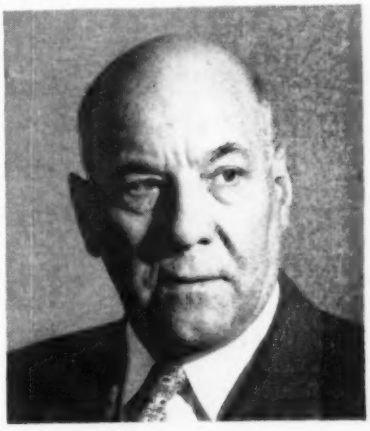
R. Carter Dye, named general sales manager, Olin Aluminum, Olin Mathieson Chemical Corp., New York.

Walter J. Holder, named manager, Micro-Elean Filter Div., The Cuno Engineering Corp., Meridan, Conn.

Dr. Dimitri Kececioglu, named asst. to the director, mechanical engineering, Allis-Chalmers Industries Group, Milwaukee.

W. R. McCaskey, appointed Pittsburgh district manager, National Electric Products Corp., Pittsburgh.

John V. E. Hansen, named business manager, Research Div., National Research Corp., Cambridge, Mass.; **James R. Caudill,** named asst. business manager.



George Sengstacken, elected asst. vice president, operations, Chase Brass & Copper Co.

W. A. Luli, named works manager, The Cooper-Bessemer Corp.'s Grove City plant; **H. K. Stevenson,** named asst. works manager.

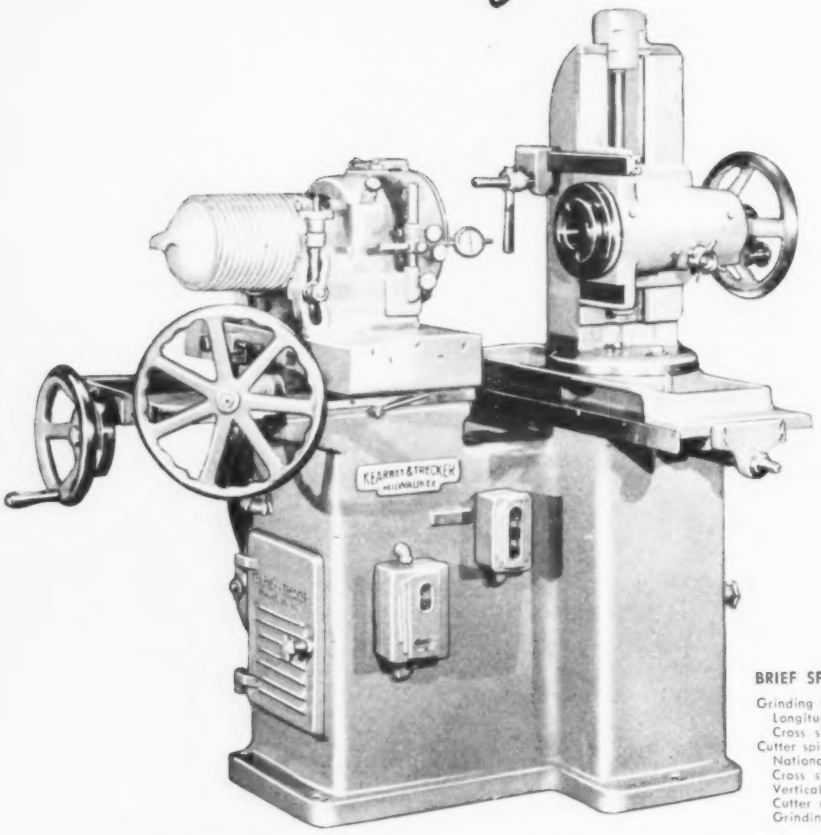
A. B. Parker, named sales manager, mechanical sales, Scale Div., Fairbanks, Morse & Co., Chicago; **C. E. Marion,** named manager, San Francisco branch, Scale Dept.; **Richard Wasniak,** appointed manager, Scale Service, Scale Div., Chicago.

E. M. White, named sales manager, Mining Div., Mine Safety Appliances Co., Pittsburgh; **W. C.**

ESPECIALLY DESIGNED TO...

SHARPEN CARBIDE FACE MILL CUTTERS

faster and better



BRIEF SPECIFICATIONS

Grinding wheel spindle range:	
Longitudinal slide movement	5½"
Cross slide movement	11"
Cutter spindle range:	
National Standard Spindle End	No. 50
Cross slide movement	13"
Vertical slide movement	13¾"
Cutter upright swivels	360°
Grinding wheel spindle drive motor	1 hp

KEARNEY & TRECKER MILWAUKEE

FACE MILL

CUTTER GRINDERS

handle all types of face mill cutters up to 24" in diameter. Accurate to 0.0002"

EVERY important feature you need for low-cost, efficient sharpening of carbide and H.S.S. face mill cutters are built into these Kearney & Trecker heavy-duty precision Cutter Grinders.

Handily located controls simplify operation. Graduated dials facilitate setups. Spindle flywheel helps maintain 3400 rpm constant speed during grinding. A jeweled-bearing dial indicator is furnished for checking finished cutter accuracy.

Three-inch to 7" dia. face mills attach to style "C" arbors and mount on the cutter spindle head. Cutters 8" to 24" dia. bolt directly to spindle nose.

Write for Bulletin G-10, Kearney & Trecker Corp., 6792 W. National Avenue, Milwaukee 14, Wisconsin

KEARNEY & TRECKER MILWAUKEE

Designers and Builders of Precision and Production Machine Tools Since 1898

ATLANTA, GA.
Scott Machine Tool Co.
411 Williams St., N.W.

BIRMINGHAM, ALA.
George M. Meriwether
Industrial Equipment
1712 Seventh Ave. North

BOSTON, MASS.
Stedfast & Roulston, Inc.
11 Deerfield St.

BUFFALO 23, N.Y.
Syracuse Supply Co.
1965 Sheridan Drive

CHARLESTON, W. VA.
Wm. S. Bolden Co., Inc.
MacCorkle Ave.

CHATTANOOGA, TENN.
Scott Machine Tool Co.

CHICAGO, ILL.
Jackson-Fotsch Co.
7350 West Lawrence Ave.

CINCINNATI, O.
The E. A. Kinsey Co.
327-335 W. Fourth St.

NEW YORK, N. Y.
Kearney & Trecker Corp.
409 Grand Ave.
Englewood, New Jersey

NEW ORLEANS, LA.
Stauss & Haas, Inc.
524 Camp St.

OMAHA, NEB.
Fuchs Mach. & Supply Co.
2401 N. Eleventh St.

PHILADELPHIA, PENN.
Machinery Assoc., Inc.
325 E. Lancaster Ave.
Wynnewood, Penna.

PITTSBURGH, PENN.
Kearney & Trecker Corp.
4 West Manilla Ave.

PORTLAND, ORE.
Harry M. Euler Co.
2811 N.E. Gilsan St.

RICHMOND, VA.
Smith-Courtney Co.
Seventh & Bainbridge Sts.

For details, contact these

KEARNEY & TRECKER DISTRIBUTORS

or write to

KEARNEY & TRECKER CORP.

6792 W. National Ave., Milwaukee 14, Wis.

CLEVELAND, O.
Kearney & Trecker Corp.
Euclid Ave. & E. 17th St.

COLUMBUS, O.
The E. A. Kinsey Co.
1020 W. Fifth St.

DALLAS, TEX.
Greene Machinery Co.
6300 Wyche Blvd.

DAYTON, O.
The E.A. Kinsey Co.
16 Washington St.

DENVER, COLO.
F. J. Leonard Co.
1219 California St.

DETROIT, MICH.
Kearney & Trecker Corp.
10600 Puritan Ave.

GREENSBORO, N. C.
Smith-Courtney Co.
239 S. Davie St.

HICKORY, N. C.
Smith-Courtney Co.
103 3rd Street, S.W.

HOUSTON, TEX.
Steel & Machine Tool Sales
6414 Navigation Blvd.

INDIANAPOLIS, IND.
The E. A. Kinsey Co.
1550 Stadium Drive

KANSAS CITY, MO.
Blackman & Nuetzel
Machinery Co.
1103 E. Armour Blvd.

LOS ANGELES, CALIF.
Moore Machinery Co.
3200 S. Garfield Ave.

MILWAUKEE, WIS.
Kearney & Trecker Corp.
6784 W. National Ave.

ROCHESTER 4, N. Y.
Syracuse Supply Co.
311 Alexander Street

ST. LOUIS, MO.
Blackman & Nuetzel
Machinery Co.
3713 Washington Ave.

ST. PAUL, MINN.
Sales Serv. Mach. Tool Co.
2363 University Ave.

SALT LAKE CITY, UTAH
Todd Machinery Co.
4165 Holloway Drive

SAN FRANCISCO, CAL.
Moore Machinery Co.
7th & Carleton-Berkeley

SAN JOSE, CALIF.
Moore Machinery Co.
656 Stockton Ave.

SEATTLE, WASH.
Dawson Mach. Co.
5700 First Ave., S.

SHREVEPORT, LA.
Peerless Supply Co., Inc.
701 Spring St.

SYRACUSE 1, N. Y.
Syracuse Supply Co.
314-332 W. Fayette St.

TULSA, OKLA.
White Star Mach. Co.
104 Boulder Bldg.
19 West 10th Street

WICHITA, KAN.
White Star Mach. Co.
301 N. St. Francis

CANADA
MONTREAL
OTTAWA
QUEBEC
TORONTO
WINDSOR
Williams & Wilson Ltd.

Hamilton, appointed mining operations manager.

David S. Burnett, named general manager, Detroit Steel Products Div., Fenestra Inc.

F. V. Gieryn, named sales manager, Industrial Dept., Vickers Incorporated, Detroit.

Dr. John P. Sachs, appointed director, engineering and product development, The Patterson Foundry & Machine Co.

Melvin B. Cole, appointed manager, Long Island City regional plant, Federal Pacific Electric Co.

John R. Warren, appointed general superintendent, Contracting Div., Panellit Service Corp., Skokie, Ill.

Gilbert R. Boutin, named works manager, Chase Metal Works plant, Chase Brass & Copper Co.

Norman F. Garrett, appointed general manager, Chicago Works, Crane Co.

Edward M. Van Winkle, appointed general manager, Magnus Metal Div., National Lead Co., New York.

J. E. Post, named sales manager, roll coverings, Manhattan Rubber Div., Raybestos-Manhattan, Inc., Passaic, N. J.

Keith N. Stought, named plant manager, Industrial Crane & Hoist, Ingersoll Products Div., Borg-Warner Corp.

Robert G. Tabors, elected vice president and general manager, Electronics & Instrumentation Div., Baldwin-Lima-Hamilton Corp., Waltham, Mass.

Theodore Dahl, named manager, Internal Communications Dept., International Business Machines Corp., New York.

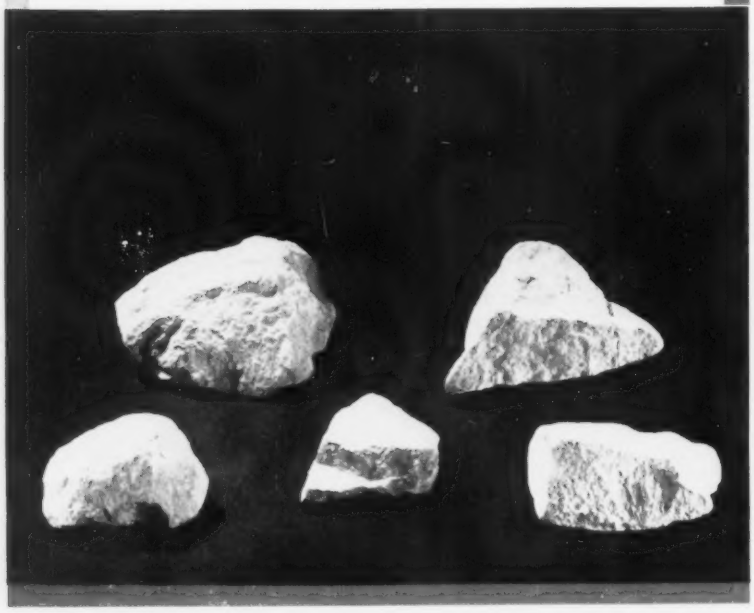
Grady L. Roark, named manager, station and power switching equipment sales, High Voltage Switchgear Dept., General Electric Co., Philadelphia.

Hiram A. Walker, named office and credit manager, Charlotte, N. C., steel service plant, Joseph T. Ryerson & Son, Inc.

Perry A. White, elected vice president and general manager, Eddystone Div., Baldwin-Lima-Hamilton Corp., Eddysotne, Pa.

Joseph C. Duke, elected executive vice president, coated abrasives, adhesives and coatings, Minnesota Mining & Manufacturing

fluxstone? . . . or
steel user's friend?



Both—if it's fluxstone from Chemstone Corporation.

Even though quarrying and processing millions of tons, Chemstone never loses sight of the fluxstone characteristics that make good steel . . . purity, hardness, size uniformity, specification adherence, low sulfur content, and solubility.

These spell out the *quality* needed to make the steels that meet today's toughest forming and fabricating requirements.

Beyond quality, you have Chemstone's time-honored record of dependable deliveries, skilled technical help and research support. The total? A supplier that will back up your fluxstone needs to the full. Your inquiry is invited.

WORLD'S LARGEST NON-CAPTIVE FLUXSTONE PRODUCER

Chemstone
CORPORATION

LEADER BUILDING, CLEVELAND 14, OHIO

a subsidiary of
MINERALS & CHEMICALS
CORPORATION OF AMERICA

Pittsburgh, Pa. Representative:
NEVILLE LIME COMPANY
Oliver Building

Co., St. Paul, Minn.; **Bert S. Cross,** elected executive vice president, graphic products.

C. E. Sutherland, elected vice president, manufacturing, Bailey Meter Co., Cleveland; **E. O. Stern,** elected treasurer and asst. secretary; **H. H. Gorrie,** elected to the board of directors.

Thomas A. Moretti, named plant manager, Marion Forge Div., Eaton Manufacturing Co., Marion, O.

William H. Mathers, elected vice president and secretary, The Yale & Towne Manufacturing Co.

J. Thomas Adrianson, named employment manager, Kalamazoo Div., The New York Air Brake Co.

Schuyler C. Reber, named sales manager, Automotive Lift Div., Rotary Lift Div., Rotary Lift Co., Memphis, Tenn.

Frederick M. Aspey, named district manager, Southwest, Consolidated Western Steel Div., U. S. Steel Corp., Phoenix, Ariz.

Warren M. Trigg, named manager, Motor Dept., Westinghouse Electric Corp., Buffalo, N. Y.

Charles D. Preusch, named chief metallurgist, Spaulding Works, Crucible Steel Co. of America, Harrison, N. J.

Joseph R. Greer, named chief engineer, Beckman & Whitley, Inc., San Carlos, Calif.

Robert W. Dispennett, named manager, closure and collapsible

Foremen Rousseau and Burns with abrasive engineer Pete Wilson developed a radically new "spec" for these extra-hard metals.

A GRINDING PROGRESS REPORT

Extra Fine Grit Silicon Carbide Succeeds In Tough Vasco Supreme I. D. Grinding Job.

Finer grits and "softer" wheels are the usual approach to grinding hard metals. This was not enough, however, on the hardened die steels required at the W. H. Nichols Co., Waltham, Mass. Wheels soft enough to cut, with the limited pressure of internal grinding, were too soft to hold shape.

Recommended: Silicon Carbide grain, for better penetration into these metals of high carbide content, and grits much finer than the normal 90, to take smaller chips but more of them.

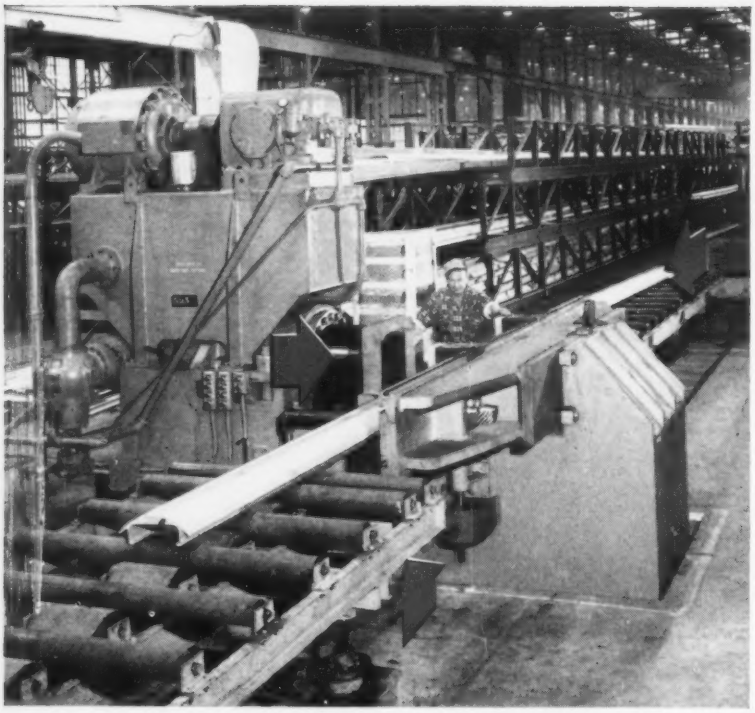
Results: Using 240 grit on the Vasco Supreme, and 150 on the Neatro and Ohio Air Die steels brought about both the quality and quantity of production desired. With wheel dressing reduced to 1/8 the amount formerly required, 50 or more pieces are now completed per wheel.

These results are typical of Bay State. You can get them through your local distributor, any branch office, or the Bay State Abrasive Products Co., Westboro, Massachusetts.

Branch offices are located in Bristol, Conn., Chicago, Ill., Cleveland, Ohio, Detroit, Mich., Pittsburgh, Pa., with distributors in all principal cities.

Slender spindle and large contact area limit infeed pressure, making wheel selection critical on hard, abrasion resistant metals.

BAY STATE
WHEELS of PROGRESS



Live-roller conveyor moves work into press. Conveyor moves up or down to position work in die. Ram moves forward to straighten work. Entire installation, including press and conveyor, designed and built by Farquhar.

Kaiser Aluminum uses this Farquhar HORIZONTAL BULLDOZER PRESS for fast-cycle straightening

Aluminum extrusions, fed *continuously* to the press on Farquhar Live-Roller Conveyors, are straightened in a *fast-cycle operation* on this Farquhar 500-ton Horizontal Bulldozer Press. This efficient set-up is installed at the U. S. Air Force Heavy Press plant operated by Kaiser Aluminum & Chemical Corporation in Halethorpe, Maryland. In their own words this press is used "to eliminate natural bows and deformations which develop in some aluminum extrusions after they have been heat treated."

Like Kaiser Aluminum, major plants in this country have found that these Farquhar Horizontal Bulldozer Presses provide high production at low unit cost. Fed either by crane, overhead or in-line conveyors, they are used to economically forge, stamp, straighten or form parts in an efficient, fast-cycle operation.

Write for complete information on Farquhar Horizontal Bulldozer Presses or, better still, ask for our proposals or recommendations.

Farquhar Special Machinery Department . . .

Our qualified staff will build your special machinery economically—your inquiry will receive prompt attention.

A. B. FARQUHAR DIVISION
The Oliver Corporation
Press and Special Machinery Departments
York 26, Pennsylvania

OLIVER

Farquhar PRESSES

Also Manufacturers of Farquhar Conveyors

tube sales, Aluminum Co. of America, Pittsburgh; **Raymond R. Hill,** named manager, packaging foil sales, Pittsburgh.

Ernest M. Whitley, named production engineer, Spinco Div., Beckman Instruments, Inc., Palo Alto, Calif.

Kurt R. Student, named service engineer, Cleveland office, Acheson Colloids Co., Port Huron, Mich.; **Connell J. Gallagher,** named service engineer, Pittsburgh office.

A. F. Sprankle, named technical director and asst. vice president, Vanadium Corp. of America.

Richard R. Kesti, named chief engineer, Valvair Corp. and Sinclair-Collins Valve Co.

Paul A. Bisnette, appointed field engineer, Los Angeles district office, Norton Co., Worcester, Mass.

John H. Platts, named general manager, Evansville (Ind.) Div., Whirlpool Corp., St. Joseph, Mich.

Lester L. Groce, named assistant sales manager, Hyatt Bearings Div.'s Western region, General Motors Corp.; **Henry J. Gilmartin,** named sales manager, Detroit zone.

William D. Cleeves, named asst. manager, engineering, Construction Equipment Div., Blaw-Knox Co., Mattoon, Ill.

W. E. Otterstrom, named comptroller, Olin Mathieson Chemical Corp.

John Warner Kenyon, named asst. works engineer, operations,

Quantity
PRODUCTION
of
GREY IRON CASTINGS

*

ONE OF THE NATION'S
LARGEST AND MOST MODERN
PRODUCTION FOUNDRIES

*

ESTABLISHED 1866

THE WHELAND COMPANY

FOUNDRY DIVISION

MAIN OFFICE AND MANUFACTURING PLANTS

CHATTANOOGA 2, TENNESSEE

Ashland Works, Armco Steel Corp.; **Lars Larson,** named asst. works engineer, development and construction.

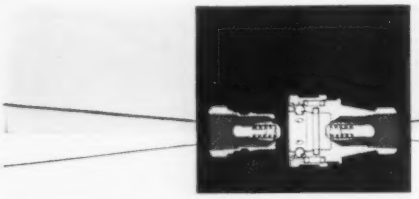
Ronald N. Sampson, I. R. Axelrad, and **Richard D. Olson,** appointed supervising engineers, Materials Engineering Dept., Westinghouse Electric Corp., East Pittsburgh.

K. R. Merrick, named sales engineer, Construction Equipment Div., Blaw-Knox Co.

Robert A. Erskine, appointed chief engineer, Industrial Dept., Vickers Incorporated, Detroit; **Carl E. Gunther,** named chief engineer, Marine and Ordnance Dept.

Bernard T. Martin, named sales engineer, upper New England area, Elgin National Watch Co., Elgin, Ill.

Robert W. Carpenter, named sales service metallurgist, Hanna Furnace Dept., unit of National Steel Corp.

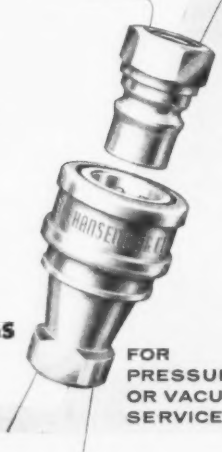


shuts off both sides of line ...prevents loss of liquid, gas, or pressure.

Wherever 2-way shut-off is required...

HANSEN

QUICK-CONNECTIVE TWO-WAY SHUT-OFF COUPLINGS



FOR PRESSURE OR VACUUM SERVICE

To connect a Hansen Two-Way Shut-Off Coupling, you merely pull back the sleeve and push the Plug into the Socket. To disconnect, just pull back the sleeve. No tools required. When Coupling is disconnected, similar valves in Socket and Plug shut off both ends of line—practically eliminate spilling of liquid or escape of gas at instant of disconnection.

Hansen Series HK Two-Way Shut-Off Couplings are available with female pipe thread connections from ⅛" to 1" inclusive. Available in brass or steel. Sizes generally required for L-P Gas service have approval of Underwriters' Laboratories.

WRITE FOR THE HANSEN CATALOG

Here's an always ready reference when you want information on couplings in a hurry. Lists complete range of sizes of Hansen One-Way Shut-Off, Two-Way Shut-Off, and Straight-Through Couplings—including Special Service Couplings for Steam, Oxygen, Acetylene, etc.

REPRESENTATIVES IN PRINCIPAL CITIES

SINCE 1915 QUICK-CONNECTIVE FLUID LINE COUPLINGS

THE HANSEN MANUFACTURING COMPANY

4031 WEST 150th STREET • CLEVELAND 11, OHIO

E. K. Smith, named purchasing agent, Reserve Mining Co., Silver Bay, Minn.

Harold E. Schmit, appointed manager, manufacturing control, Data Processing Div., International Business Machines Corp.

Thomas F. Nakles, named general manager, Firth Sterling (Canada) Ltd., Brantford, Ontario.

James R. Wilson, elected president, Mid-West Forging & Manufacturing Co., Chicago.

M. J. Zivian, president of Detroit Steel Corp. was elected director, American Iron and Steel Institute.

John V. Eakin, elected vice president, Fawick Corp., Cleveland.

Robert C. Smith, named price redetermination administrator, Temco Aircraft Corp.

John C. Elmburg, named general sales manager and **G. R. Anderson, Sr.,** named chief engineer, Fairbanks, Morse & Co.; **C. E. Clausen,** named manager, Kansas City plant; **H. M. Goodchild,** named works manager; **G. R. Anderson, Jr.,** named chief engineer, Vermont plant.

Kenneth L. Stockum, named factory representative, Eastern Div., Atkins Saw Div., Borg-Warner Corp.

R. F. Kymer, named asst. chief engineer, Company Products Div., The Cooper-Bessemer Corp.; **M. J. Helmich,** named asst. chief engineer, Development Div.

What's in a Name?

EXLO®

A name alone means little—it is the product behind it that counts.

There's always that extra margin of quality in the Vancoram Green Drum.

Since Vancoram EXLO was introduced in 1952, it has become known throughout the steel and iron industry as a product of the highest quality—particularly for the manufacture of low-carbon, stainless and heat-resisting steels and irons.

EXLO—a true ferro alloy—has these advantages, and more!

... a high chromium-carbon ratio
... controlled low silicon content
... high density
... exceptional cleanliness
... extra low-carbon content (.025% and .05% max. grades)

If you are one of the few who are not familiar with EXLO, call your nearest Vanadium Corporation Office for helpful assistance.

VANCORAM

VANADIUM CORPORATION OF AMERICA

420 Lexington Avenue, New York 17, N. Y.
Chicago • Cleveland • Detroit • Pittsburgh
Producers of alloys, metals and chemicals

You get
speedier service
from the
ZINC ZONE

Central location of
American Zinc plants assures
prompt deliveries of slab zinc to
any point in the nation.

HILLSBORO, ILL., PLANT
Prime Western, Brass Special, Intermediate, High Grade, Continuous Galvanizing Grades
MONSANTO, ILL., ELECTROLYTIC PLANT
Special High Grade, High Grade, Continuous Galvanizing Grades, Special Shapes
FORT SMITH, ARK., SMELTER
Prime Western, Brass Special
DUMAS, TEXAS, SMELTER
Prime Western, Brass Special, Continuous Galvanizing Grades

PRODUCERS OF

ALL GRADES OF SLAB ZINC
ZINC ANODES (Plating & Galvanic)
METALLIC CADMIUM
SULPHURIC ACID
LEAD FREE and LEADED ZINC OXIDES
ZINC CARBONATE
GERMANIUM DIOXIDE
AGRICULTURAL LIMESTONE
CRUSHED STONE

American Zinc Sales Company

Distributors for AMERICAN ZINC, LEAD & SMELTING COMPANY

Columbus, Ohio • Chicago • St. Louis • New York • Detroit • Pittsburgh

Resistance Welds Bypass Oxide Barrier

By J. J. Obrzut—Technical Editor

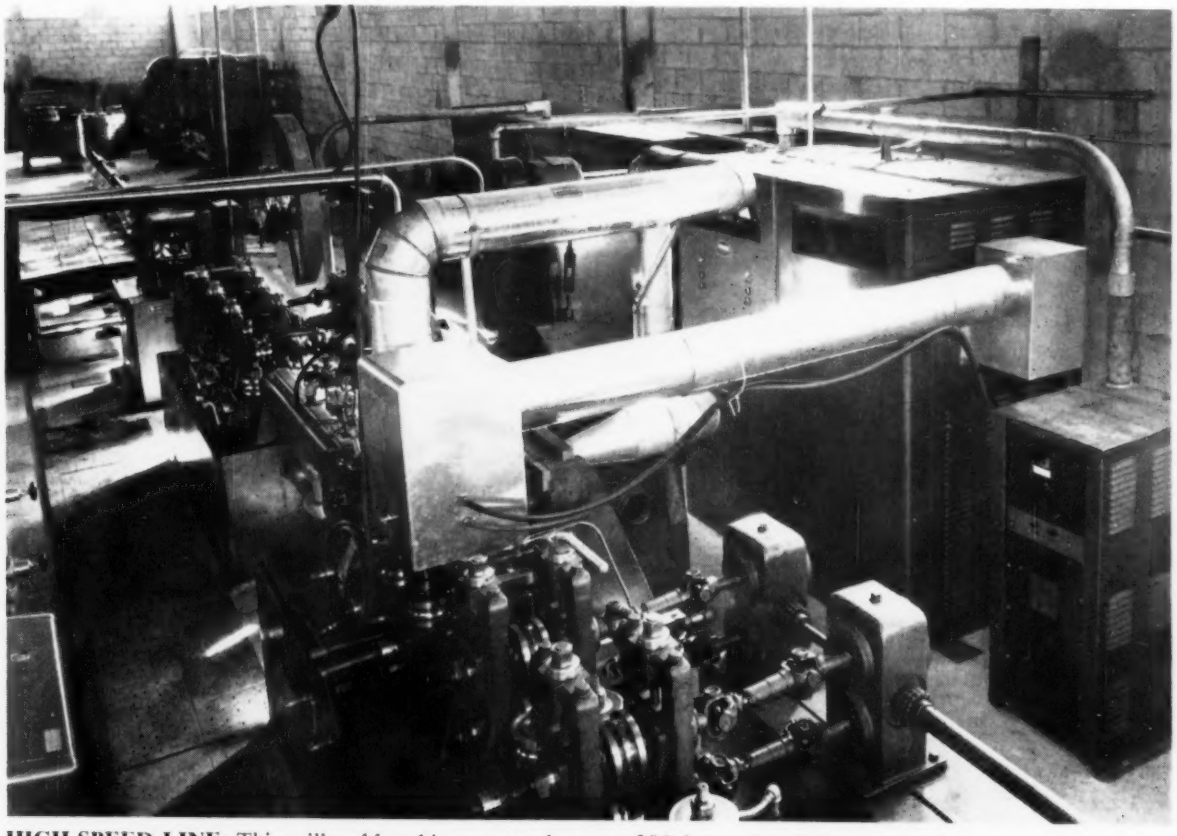
Every so often, a new welding process comes into the limelight to supplement the more than 40 processes now in use.

This one does just that. It puts high-frequency power to work to its best advantage.

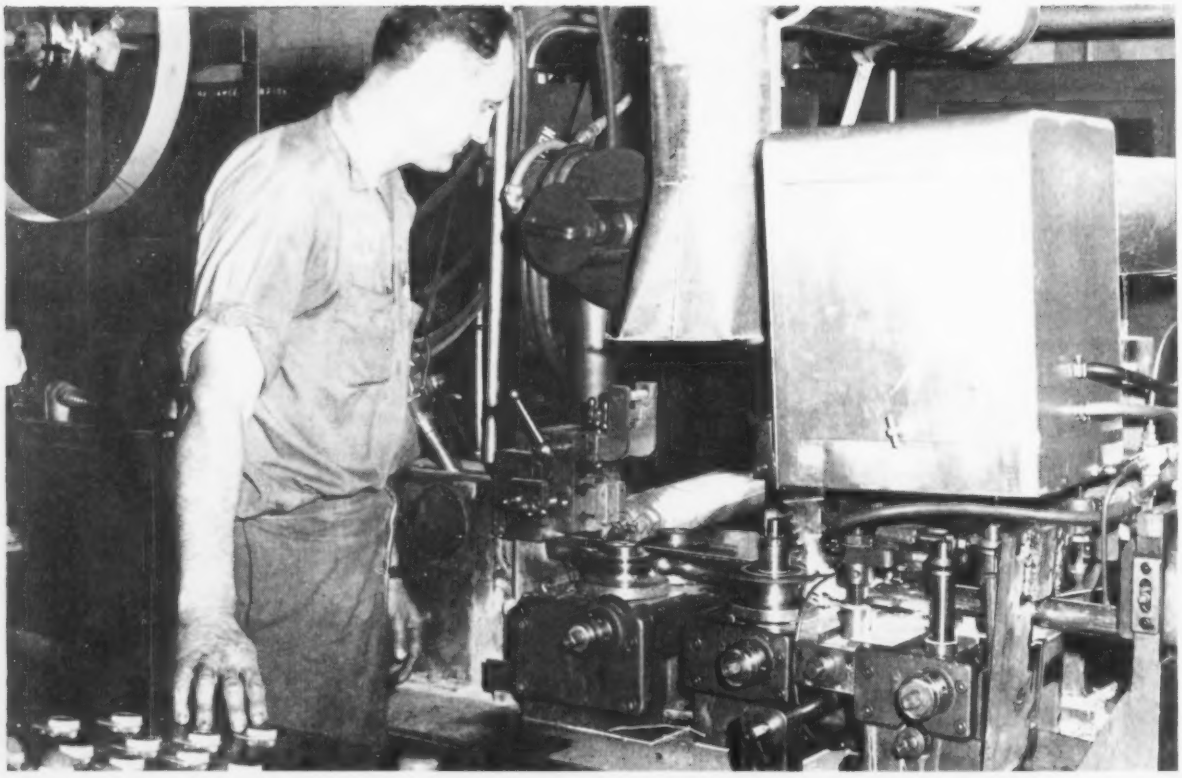
Result: No wasted energy. It all goes to speed welding.

▪ A Florida tube manufacturer recently evaluated a new welding process he installed some months earlier. He looked at it from every angle—speed, quality, economy. His analysis of the process convinced him that he made a wise choice, but he seemed more pleased with the job the equipment was doing.

He had good reason for his enthusiasm. Speed? He was getting 25 pct faster output than he expected. Quality? Excellent—in fact, the color of the hot weld metal indicated what quality he was getting without testing. Versatility? He has used the process for cold-rolled steel, hot-rolled steel, galvanized steel, aluminized steel and aluminum. Except for adjusting the heat control, there was no



HIGH-SPEED LINE: This mill welds tubing at speeds up to 300 fpm; takes little time to change over.



NO SPATTER: Only a small whisp of smoke comes from weld zone, leaving a rather clean surface.

difference in performance between alloys.

Paying Off—What about economy? J. H. Karlet, President, James Steel & Tube Co., Miami, Fla., thinks his investment was a wise one. Not only is he getting the quality he wants, but he's now producing tubing at speeds he couldn't get before. Switching from one material to another takes little time. And if he should decide to make copper tubing, he can weld it with the same equipment.

The process is called Thermatool. It was developed by New Rochelle Tool Corp., New Rochelle, N. Y. The electrical principles involved in this high-frequency resistance welding method are not new, but they're applied in a novel way.

First, let's take a look how tubing is made by conventional resistance seam welding. Two roll-type electrodes contact the seam to be welded. As current flows directly across the seam from one electrode to the other, the resistance at the seam heats the metal which joins the contacting edges.

How It Works—The Thermatool process differs in several ways from resistance seam welding. First, it uses no roll-type electrodes. Instead, it brings current to the weld area by means of two sliding contacts, one on each side of the seam. The high-frequency current heats only the edges, and when these edges are brought to welding temperature, pressure rolls force them together to complete a forge weld.

Tubing passes through the mill in the open-seam condition until it reaches the pressure rolls. Thus, the edges of the tubing form a small triangle as they approach the pressure rolls. Just ahead of the rolls are the current contacts.

Takes Two Paths—The high-frequency current passes through two paths as though they were connected in parallel. Current from one contact flows around the back of the tube to the other contact. Current from the second contact takes a V-shaped path along the tube edges to the first contact.

The key to the process is in getting the current to take a path so that it does an effective welding job. That path will be the one of lower inductance; in this case, the V-shaped path along the tube edges about to be welded. The path around the back of the tube is one of high inductance.

The low-inductance path carries nearly all the current. What happens, in effect, is that each contact acts as a return conductor for the other. The current that heats one edge of the open seam also heats the opposite edge.

Affects Surface—In the Thermatool process, a current frequency of 450,000 cps is used. At such a high frequency, the current travels through a very shallow depth of the metal. Direct heating by resistance is therefore confined to the abutting surface areas where it's needed most. The metal along these

edges reaches welding temperature even before the rolls apply pressure. Under pressure, the abutting edges squeeze out the molten metal and bring the metal in the plastic range into intimate contact to form a sound, strong weld.

High-frequency current behaves favorably in still another way. Ordinarily, the amount of 60-cycle current needed to do an effective heating job would create severe contact problems. With high-frequency current, the edges being heated set up a higher resistance. This higher resistance in turn increases the heating rate and permits the use of lower current to achieve the same results. To carry the lower current load, contacts can be smaller and simpler in design. High-velocity water cooling adds extra life to the contacts used in the Thermatool process.

No Cleaning—Oxide coatings on metals are a problem with most welding methods. They must be removed, or at least broken up. In some cases, their presence is so detrimental to welding, and to the weld itself, that costly cleaning procedures must be used to get good results.

Again, high-frequency current performs an important—and cost-saving—job. It travels into the metal by capacitive action—even through heavy scale such as is formed on hot-rolled steel. The tubing needs no cleaning before welding. Moreover, only slight pressure on the contact shoe is enough to assure positive conduction of current without arcing.

In many welding processes, it's important to prepare the abutting edges of the seam with care. The Thermatool process requires no special preparation other than a sheared edge. With high heat in a relatively small area, the heat-affected zone is small, and the tendency to spatter is negligible.

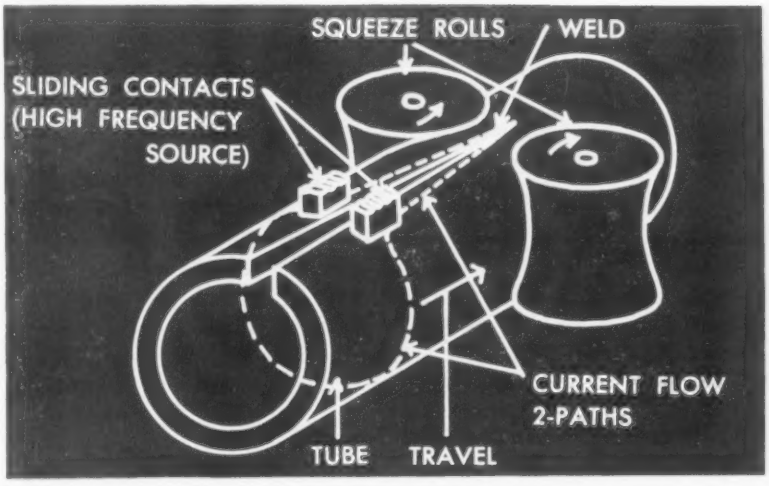
Metals Unlimited—Although most work to date has been with various grades of steel and aluminum, a number of other metals and alloys have been welded successfully. Among them are stainless steel, silicon bronze, brass, Monel, Inconel, Incaloy and zirconium. Even copper of 100-pct conductivity is being welded in production without difficulty. Enough work has not yet been done with other metals to say definitely whether they can be welded by this process. However, there's good reason to believe that if a metal or alloy is weldable at all, it can be welded by the Thermatool process.

There's no maximum diameter of tubing that can be welded. The speed of welding is a function of wall thickness. Therefore, large-diameter tubing of a given wall thickness can be welded at the same speed as small-diameter tubing.

Is the process limited to straight tubing? Not at all. Strip materials can be welded just as easily as tubing. The speeds are just as fast as those for tubing, and in some cases they're faster. Welding of tapered tubes and strip to tube are other applications.

Some Actual Welding Speeds on Tubing

Material	Tubing Size, O.D., in.	Wall Thickness, in.	Welding Speed, fpm
Aluminum	1	0.049	225
Aluminum	6	0.062	113
Copper	1	0.049	150
Galvanized Steel	1 5/8	0.093	90
Mild Rolled Steel	3/8	0.028	300
Cold-Rolled Steel	1	0.050	175
Hot-Rolled Steel (with scale)	6 5/8	0.160	30
Hot-Rolled Steel (pickled)	2	0.062	100



CONCENTRATES POWER: Nearly all the power coming through the sliding contacts is consumed by heating the weld zone. High-frequency current hugs the abutting edges where it can do the most good.

Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., THE IRON AGE, Chestnut & 56th St., Philadelphia 39, Pa.

Good Design Cuts Casting Costs

By J. W. Murphy—Manager, Stainless Casting Sales, Allegheny Ludlum Steel Corp., Buffalo.

You may be wasting money on poorly designed stainless and high-alloy castings. Lots of people do.

Trace high unit cost, rejects and machining problems back to their source—you'll find poor design is a prime offender.

Here are ways to get your casting costs down.

■ A tremendous amount of money is being needlessly squandered on poorly designed stainless and high-alloy castings. In addition to first cost of the castings rejects are generally high, machining is excessive, and there's likely to be lost production, delays, and failures in later service.

Most of this can be avoided. And surprisingly, the drawing board is the place to do it.

Complicated molds, extra cores and general ignorance of how molten metal behaves all take their toll and boost the price. While service requirements rightly have priority over molding problems, designers can often compromise in the direction of good foundry practice.

One of the more vital points to consider is section thickness. Wherever possible, stainless steel castings should be uniform in section. When sections range from very thick to very thin, flaws due to shrinkage are almost certain. Stainless and high-alloy steels have a shrinkage factor of 9 32 in.—somewhat higher than the usual allowance for other types of metals.

Sets Up Stresses—Stay clear of abrupt changes in section. Even though adequate fillets are provided, severe stresses are set up where light and heavy sections join, both as the casting cools and under load in service. This can sometimes be avoided by thickening and thinning the two sections to make them more nearly equal.

In designing stainless steel castings, avoid deep pockets with sharp inside corners. Metal, unlike a free liquid, flows more in tiny waves that lap over each other and set up a certain amount of tension in the mass. As the metal moves through constantly narrowing channels, the tensions cause separations in the form of small pipes. These pipes, often microscopic in size, tend to enlarge through the accumulation of gases.

Deep pockets with sharp inside corners also make sand removal difficult. If pockets can't be avoided, they should have as many large openings as possible to speed heat transfer and later make sand removal easier.

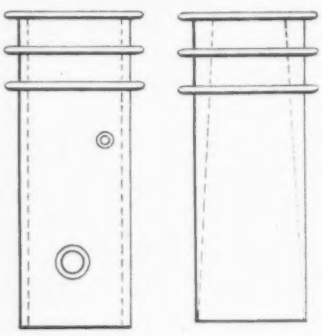
Watch Fillets—Provisions should be made to equalize sections of bosses and trunions with sections they join. This may be done by using adequate fillets and by coring out the boss so its section thickness about equals that of the member to which it's joined.

To overcome one of the more common faults in casting design, eliminate sharp corners and provide ample fillets throughout. Sharp corners on molds and cores often result in excessive cracking. They wash away easily and spread sand through the molten mass.

Draft is another important consideration. Keep it ample so patterns can be removed easily from the sand. Back-draft makes it impossible to pull the pattern without disturbing the mold; the only alternative is to use cores, which add greatly to cost.

Avoid Small Cores—In designing a high-alloy casting, it's usually better to avoid cores that are less than ¾ in. in cross-sectional area. Small holes can't be cored out to close tolerance and so need to be reamed to final dimensions. An area less than ¾ in. is too small to take intense heat away from the metal; core sand will burn in and create a surface that's almost impossible to machine. It's usually cheaper to cast solid and machine the hole later.

Overall design of a casting should be planned so directional solidification takes place. Castings generally solidify from the bottom up. In so doing the area that's solidifying draws liquid metal from directly above, and these sections are in turn fed from the surplus provided in superimposed risers. There'll be fewer rejects if sections are arranged for proper feeding.



REJECTS CUT 60 PCT: Flaws on valve-body ID are virtually eliminated by making walls heavier at the top, machining to final size.

Wherever possible, thin sections should be kept at the bottom and outer portions of the casting. Thin sections freeze almost at once and might block metal flow to heavy sections that lie beyond. Sometimes this can't be avoided, as where heavier bosses are at the ends of light supporting members. But at least, cavities and shrinkage will be limited to areas where they won't prove harmful or might be repaired.

Supply More Info—Then there's

the matter of specifications. It's not enough to state that castings shall be free of internal defects like shrinkage, porosity and slag.

No casting is perfect. Some defects can be tolerated, others cannot. The foundry should know everything possible about end-use of the finished casting — what portion of it is critical, which areas can be sacrificed and to what extent, and where strength is a vital factor. Close liason between designer and foundry will usually turn up easier ways to get a sound casting that'll do the job at less unit cost.

Remember too that foundries specialize. Some are specialists in certain types of castings, others work most with a particular size, and still others prefer working with one or two types of metal. Get to know your sources of supply and find out what each is best able to handle. When a foundry has to improvise, it's usually reflected in the price.

These Will Help—In summary, here are some design hints that will go far toward cutting first cost and reducing rejects:

If possible, design the casting with uniform section thickness.

When the design of a one-piece casting is complicated, divide it into smaller parts and assemble by welding.

If appearance is important, avoid large flat surfaces. True flatness is hard to maintain and irregularities may stand out prominently.

Keep webbing, brackets and ribs to a minimum; they may produce shrinkage and hot tears.

Use fillets of proper size and avoid sharp inside corners.

Wherever it's feasible make casting members wave-shaped or curved; they'll be better able to stand contraction stresses.

Never specify as-cast dimensional tolerances where they aren't critical or the added cost isn't compensated in later processing.

Design with the idea of simplifying pattern equipment and molding procedure.

Don't put lettering or other markings on surfaces that require draft.

Hold size and thickness of the casting to the minimum required. Let the term "minimum section thickness" mean just that—the least thickness that will meet safe operating limits.

Avoid deep and narrow pockets.

Dry-sand cores are always expensive, so make each one do as much work as possible.

Casting Flaws and How They Are Influenced by Design

DEFECTS	COMMON CAUSES
Scars, seams and plates	Metal flow interrupted by non-uniform sections.
Shrinkage cavities, depressions	Abrupt changes in section size, isolated heavy sections that can't be fed, not enough fillets, fillets that are too heavy.
Hot tears and cracks	Poor filleting, varied section thickness, abrupt change in cooling rate where light and heavy sections meet.
Warpage	Not enough ribs, wrong size ribs, stresses induced by varying section.
Misruns and cold shuts	Metal flow interrupted by non-uniform sections.
Dirt, slag, other inclusions	Too much metal flow over any one part of the mold, nozzle effects created by design.
Drops (sand dropping from upper portion of mold)	Sharp corners, deep pockets, overhangs and protruding sections.
Stickers or rats (lumps on surface of casting)	Not enough draft, causing part of mold face to stick to pattern.
Gas holes, porosity, pinholes, blisters	Poor provision for venting outlets.
Rough surfaces	Sharp corners, deep pockets.
Penetration (sand grains embedded in surface)	Overhangs, projections, sharp corners, thin cores surrounded by heavy sections.
Mold or core shifts	Poor provision for core prints or core supports.
Broken castings	Isolated heavy sections, light sections, projections, poor fillets.

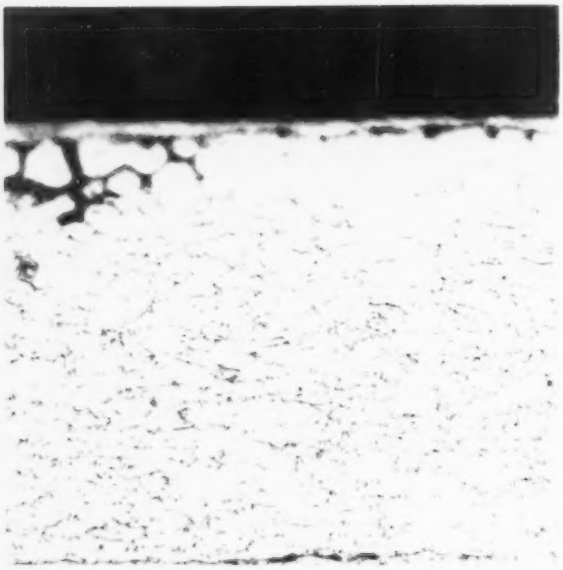


Fig. 1: Photomicrograph shows the original spheroidized structure of a 0.22 pct carbon steel. 500x

Fig. 2: After chromizing, structure approximates that of carbon-free ferrite. 200x

Aluminum Chromizing: Strength

By **G. R. Fulton** and **R. C. Reed**—Guided Missile Div., Firestone Tire & Rubber Co., Los Angeles

Aluminum chromizing may be the answer where conventional chromizing falls short of strength requirements.

It doesn't decarburize steel. It's an alloy-saver that provides a reliable corrosion-resistant coating that can be readily welded.

▪ The conventional chromizing of steel has one particular disadvantage. Although useful as a surface protective coating, the process tends to decarburize steels to a degree that seriously lowers their strength.

Aluminum chromizing is a modification of the conventional process with a big difference. It doesn't tend to decarburize. And it still affords a reliable oxidation- and corrosion-resistant coating.

Big Problem—To conserve strategic materials, efforts have been made to use chromium diffused steel as a substitute for stainless steel in some applications. But there still remained the problem of adapting conventional chromizing to produce a material with higher strength requirements.

Normally, the chromizing technique consists of packing parts to be treated in a proprietary powder compound of ferrochromium, ammonium iodide, and refactory diluent. The parts and the chromizing mixture are compacted in a metal retort, sealed with a fusible compound, and heated in a box-type furnace. There is a 12-hour cycle involved, with temperatures ranging from 1850° to 1950°F.

Strength Loss—In a test run, specimens of plain carbon steels were subjected to this treatment. The specimens were in the form of steel sheet, with carbon contents of 0.11, 0.22, and 0.04 pct respectively.

Results of tensile tests on the treated steels showed a marked reduction in strength as a result of the chromizing treatments. In Table 1, some typical values obtained are compared with the properties of AISI 1020 steel in the untreated condition.

The yield strength of the 0.11 pct carbon steel dropped from 22,540 psi to an average of 15,600 psi as a result of treatment.

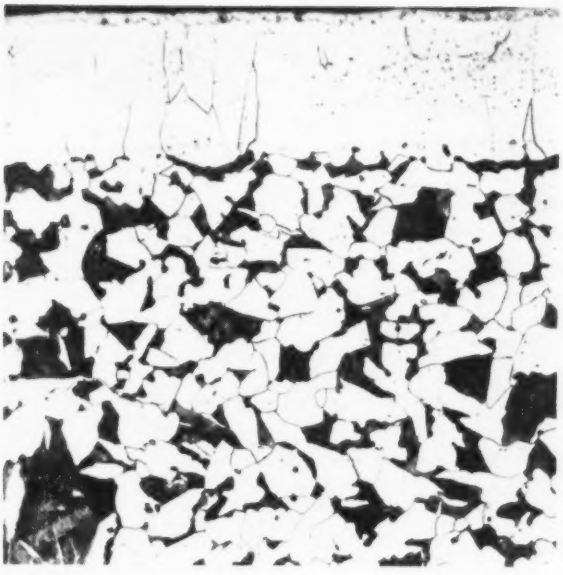


Fig. 3: Aluminum chromizing of a 0.22 pct carbon steel provides a pearlitic structure, diffused case.

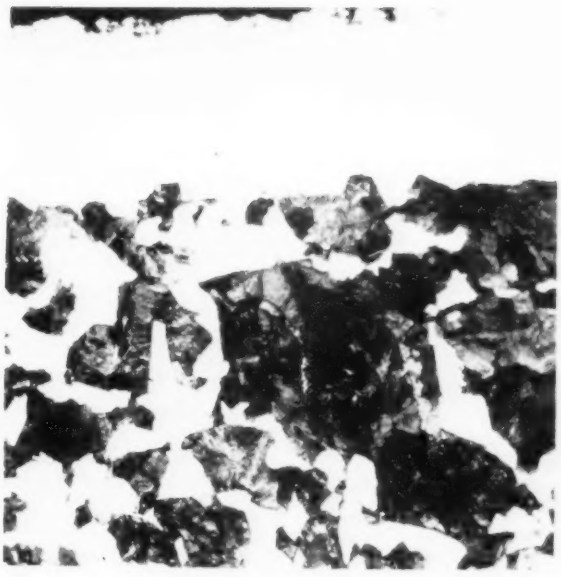


Fig. 4: Aluminum chromizing provided satisfactory results on the 4130 steel shown above. 100x

Plus Corrosion-Resistance

Severe Decarb — A metallographic study of the steel after chromizing revealed a structure virtually devoid of combined carbon. Fig. 1 shows the original spheroidized structure of the material as received from the mill. In contrast, Fig. 2 shows the near proximity to a structure of carbon-free ferrite in the same steel after chromizing. Chemical analysis of this sample showed that carbon content had dropped to 0.05 pct.

Evidently, a relationship exists between the absence of pearlite after furnace cooling from chromizing temperatures and the reduction in strength. As a result, modifications were sought in the conventional chromizing process that would minimize decarburization.

Aluminum Helps—One possible modification — lowering the processing temperature—was not successful. Samples treated at 1550° for 10 hours failed to chromize appreciably, yet were severely decarburized.

For this reason, attempts were made to protect the surface of the steel against the apparent decarburizing effect of the atmosphere produced by the packing material. Among other possibilities, the chromizing of aluminum-diffused steel was tried.

First attempts at aluminum chromizing produced a diffused zone of 0.003-0.004 in. in depth. A 0.22 pct carbon steel was used, and it was soaked at 1700°F for 12 hours. A sample of this material—showing the diffused case and the typically pearlitic structure of an annealed hypoeutectoid steel —is presented in Fig. 3.

Welds Tested — The improved tensile properties obtained in the 0.22 pct carbon steel after aluminum-chromizing are shown in Table 2. Other than a negligible reduction in yield strength of the 0.11 pct carbon steel, the results of aluminum-chromizing are highly favorable.

To determine the weldability of aluminum-chromized steel, fusion welding experiments were conducted using heliarc welding techniques. Material used was AISI 1020 steel strip 0.035 in. thick.

Initially, tightly butted sheet edges were welded by automatic means without filler wire addition. Joints made in this manner all showed signs of severe longitudinal cracks along the center line of the weld.

Further welding tests were made by gapping the joint and adding an 18-8 type stainless steel filler metal. The edges of the sheets to be joined were again milled and clamped in a fixture. This maintained a uniform

gap to permit adding the filler wire.

No Cracks—Weld beads produced were ground flush with sheet surfaces. Radiographic and dye penetrant tests showed no weld cracks.

Typical tensile test values are shown in Table 3. All breaks in testing occurred in the parent metal, and well outside the heat-affected zone. But since tensile results do not compare with the strength of the aluminum-chromized material before welding, additional specimens were annealed for 15 minutes at 1600°F, then air-cooled to improve strength. This produced substantial improvement, as shown in Table 4.

Success with plain carbon steels justified a limited investigation with alloy steel. For test purposes, samples of AISI 4130 (0.064-in. thick) were selected. Mill received specimens were aluminum-chromized, annealed at 1600°F for 15 minutes, then cooled in air.

Future Promising—These tests also provided favorable results. So that, even on a limited test basis, there appears to be considerable promise for the application of aluminum-chromizing to low-alloy, high strength steels. The structure of the diffused zone obtained with AISI 4130 steel is illustrated in Fig. 4.

	Material Tested	Yield Strength, psi	Tensile Strength, psi	Elong. in 2 in., pct
Table 1 Properties of Plain Carbon Steels After Conventional Chromizing	Mill-Received	41,060	60,610	31.0
	Chromized	21,690	44,900	37.5
	Chromized	22,220	44,980	29.0
	Chromized	20,100	44,970	32.0
Table 2 Properties of Plain Carbon Steels After Aluminum-Chromizing	Mill-Received	41,060	60,610	31.0
	Aluminum-Chromized	39,650	66,670	25.5
	Aluminum-Chromized	36,080	65,910	25.0
	Aluminum-Chromized	36,160	67,230	26.0
Table 3 Properties of Unannealed Aluminum-Chromized Weld Specimens	Specimen Tested			
	1	28,990	55,860	19.0
	2	30,480	56,150	19.5
Table 4 Properties of Annealed Aluminum-Chromized Weld Specimens	Specimen Tested			
	1	37,190	60,300	18.5
	2	37,810	57,210	19.0
Table 5 Properties of Annealed Aluminum-Chromized 4130	Mill-Received	73,160	130,190	15.0
	Aluminum-Chromized	70,400	126,950	11.0
	Aluminum-Chromized	78,340	127,390	12.0
	Aluminum-Chromized	75,630	127,340	10.5

New Method Speeds Analysis for Salt in Pickling Bath

The Navy is now specifying that sodium chloride be added to sulfuric acid pickling baths for certain types of steel. It requires, too, that salt concentration be held to a specified level.

Here's a way to make faster checks on salt losses.

■ It's been known for some time that addition of sodium chloride to sulfuric acid pickling baths will inhibit attack on steel. Last year, the Navy specified addition of 1.5 pct sodium chloride to pickling baths for special-treatment steel and high yield-strength steels, with salt added to maintain this concentration.

One source of salt depletion is drag-out, when pieces are removed from the bath. Another occurs where tanks are heated by steam injection. Generally, the rate of steam condensation is greater than the rate of evaporation; as a result, the volume of the bath increases to a level which may cause overflow during operation. This necessitates frequent "bleeding" of the pickling solution, with a resultant loss of salt.

Frequent analyses must be made in order to maintain proper salt concentration. A method was developed at the Materials Laboratory, New York Naval Shipyard, whereby analysis time is cut to five minutes per determination. An adaptation of the Volhard chloride titration method, this rapid procedure has been used for more than a year as a weekly check on chloride-containing baths.

Sulfuric acid, inhibitor, iron, and impurities normally found in pickling baths have not been found to interfere. The accompanying table indicates accuracy of typical sodium chloride analyses made by the new method. Results are close enough for control purposes.

Developed by I. Geld, Supervisory Chemist, and A. Ticker, Chemist at the Materials Lab, the new method is offered by them as a suggested procedure only and isn't part of the Navy spec.

Accuracy of New Method

NaCl Present, pct (wt/vol)	NaCl Found, pct (wt/vol)
0.50	0.50
1.00	1.03
1.50	1.48

Rapid Analysis For Sodium Chloride In Pickling Solution

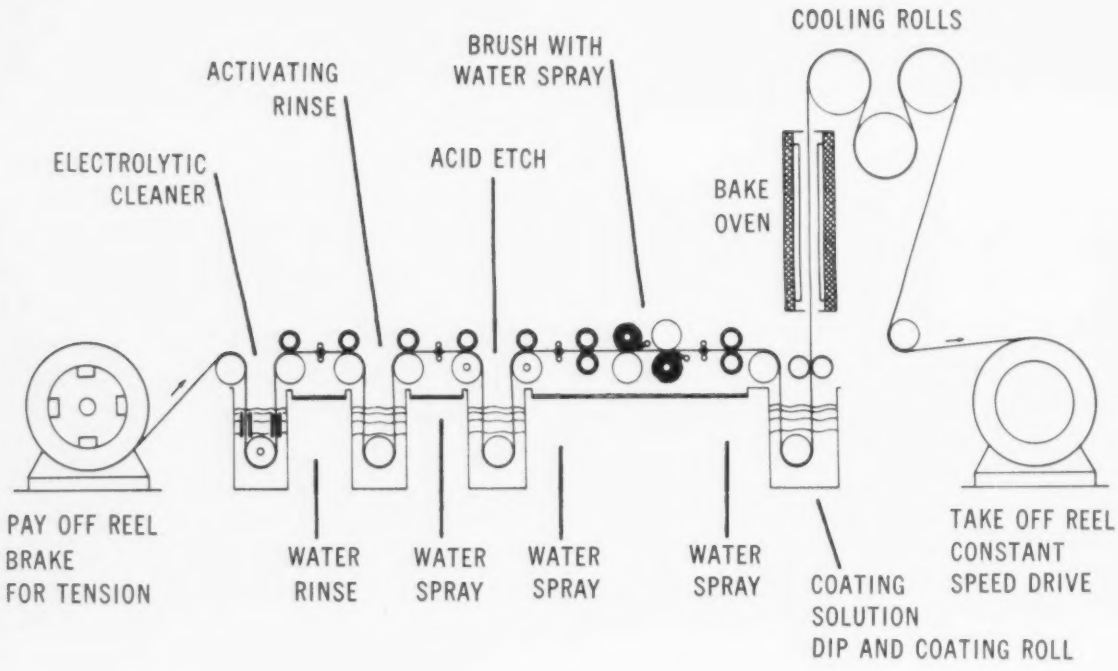
Reagents needed:

Silver nitrate standard solution—Dissolve 48.0 g silver nitrate in 500 ml distilled water, dilute to exactly 1000 ml and mix (1 ml—10 mg Cl). Ammonium Thiocyanate standard solution—Dissolve 2.5 g ammonium thiocyanate in 1000 ml distilled water and mix. Titrate against 5.00 ml of the silver nitrate solution, as described under procedure. Adjust concentration, as indicated by titration, so that 10 ml of thiocyanate solution is exactly equivalent to 1 ml of silver nitrate solution.
Ferric ammonium sulfate—Fe $(NH_4)_2$•12 H_2O
Nitrobenzene—C.P.

Procedure:

1. **Pipette 5.00 ml of pickling solution into a 250 ml Erlenmeyer flask.**
2. **Add 5.00 ml of silver nitrate solution and stir.**
3. **Add 5 ml nitric acid (sp gr 1.42) and stir.**
4. **Add 1 ml nitrobenzene.**
5. **Shake vigorously for about one minute or until silver chloride precipitate appears flaky.**
6. **Add 0.2 to 0.4 g ferric ammonium sulfate powder (or 3 ml of a 10 pct solution) and stir.**
7. **Titrate with standard ammonium thiocyanate solution to a definite salmon-red end point which persists at least 10 seconds.**

$$\text{Pct NaCl (wt/vol)} = \frac{(50 - \text{ammonium thiocyanate titer})}{30.3}$$



CONTINUOUS AND FAST: Steps in Hinac-treating process. Installation costs less than a comparable tin line.

New Surface Treatment Substitutes for Tinplate

Stockpiles or no, a major crisis is likely to leave us tinplate poor.

Fortunately, there's a new process that looks just as good. It's done entirely with chemicals, works fast and is inexpensive.

It lends itself well to high-speed continuous application.

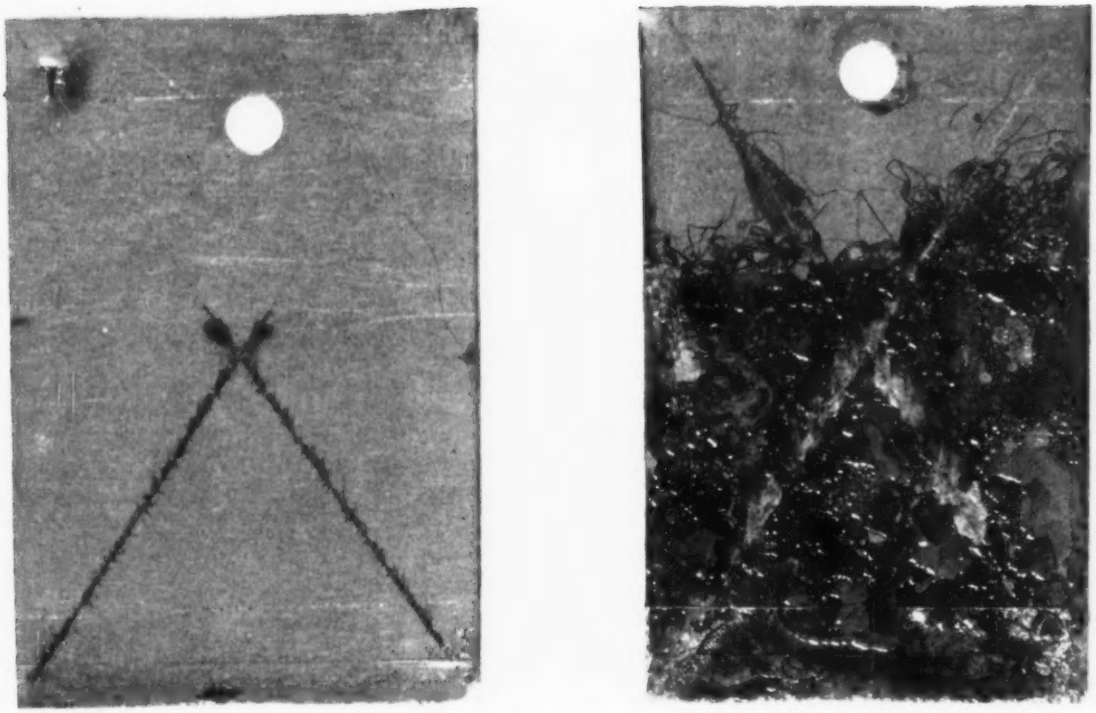
■ Strike another basic material from the list of strategic supplies that might be threatened by Far East War. There's a new substitute for tin insofar as its main use, tinplate, is concerned.

The substitute is a unique chemical treatment called the Hinac Process, developed and patented by Heintz Manufacturing Co., Philadelphia. It produces an inorganic coating consisting chiefly of chromium compounds which equals tinplate in economy and performance; in some respects it has even proved superior.

Not only does the new process benefit plain carbon steel; it reportedly gives excellent results on stainless steel, magnesium, aluminum, zinc and copper, or steel coated with these metals.

No plating is involved. The Hinac Process employs inexpensive and easily obtained chemicals. It's particularly suited to high-speed strip and sheet lines, because total processing time is only a few seconds and is carried out at room temperatures. Simplicity of operation and control is one of its biggest virtues.

Development of the new process goes back to the days of the Korean War, when industry feared extension of the conflict would cut off the supply of tin. American Can Co. initiated its own Operation Survival, aimed at eliminating tin and other strategic raw materials from all types of metal containers. Heintz



GOOD BASE: Underpaint attack on Hinac panel, left, is limited to scratches after soak in salt-peroxide mix.

also attacked the problem as a corollary to its continuing program on rustproofing and finishing metals.

Pilot Plant Operating—First results were encouraging, and the two joined forces with a third—Bethlehem Steel—to move the process from laboratory to production. A pilot line was established in 1953 at Bethlehem's Sparrows Point mill, and large sample lots of Hinac-treated blackplate were made for evaluation by the can industry.

In continuous operation since August, 1954, this production line is now operating around the clock. Its products are being used by all of the big three—American, Continental Can, and National Can Co. Most of the Hinac-treated blackplate goes into cans for detergents; for this use Hinac is superior to tinplate, since it has greater resistance to alkalis.

All chemical treatment steps in the process involve non-sludging and non-electrolytic baths operated at room temperatures. No molten metal is used. Composition and thickness of the Hinac coating can be varied in accordance with the product's end use.

It Costs Less—Equipment costs are substantially lower than those required for an electrolytic tin installation for treating strip. Chemical and energy costs are correspondingly low.

The Hinac coating is water-insoluble and offers excellent chemical resistance, particularly to alkaline media. Corrosion resistance of the bare coating is also high. Adhesion of lacquer, varnish or paint to the Hinac coating is very good. Underfilm paint corrosion resistance is exceptionally high.

Hinac coating is smooth and imparts a high lustre to the surface of metals. Moreover, its scratch resistance is superior to that of an iron phosphate coating of comparable coating weight.

The weight of Hinac coating can be varied from a few to several hundred mg per sq ft.

Metal surfaces which have been Hinac-treated are difficult to solder unless the coating is first removed, either chemically or mechanically; however, it's possible to mask off certain areas during the Hinac treatment and leave them ready for soldering. Hinac-coated metal can be joined by welding or thermal-plastic means; the process improves weldability of the base metal in most cases.

Ideal For Cans—Three properties of Hinac combine to make it an obvious choice for cans: (1) excellent corrosion resistance of the coating itself; (2) its increased resistance when under enamel; and (3) its satisfactory enamel adhesion properties. Since the Hinac Process is adaptable to high-speed operations, it's especially useful for treating strip that requires good paint bonding qualities in addition to a high degree of corrosion resistance.

Chemical and corrosion resistance of Hinac was demonstrated in a series of tests involving both

Hinac-treated blackplate and the same carbon steel in untreated form.

In one of these, a synthetic corn test, enameled panels are placed in glass jars and a synthetic corn mixture is poured over them. A portion of the panel is left uncovered and protruding above the surface of the test medium to simulate head space in a can. The jars are closed and subjected to 15 lb pressure for 70 minutes.

Paint Remains Firm—After cooling, the jars are opened and enamel adhesion is measured by placing a piece of Scotch tape across the liquid-gas interface. The tape is quickly pulled from the surface, and the degree of enamel failure is determined by the amount of enamel lifted from the panel. Hinac-treated panels showed no enamel failure; untreated panels showed complete failure of the enamel.

Performance of Hinac-Treated vs Untreated Steel

General Performance Test	Untreated Blackplate	Hinac-Treated Blackplate
Humidity Exposure—98 pct rel. humid. at 110°F for 100 hrs (bare)	Very Poor	Good
Cold Water Immersion Test 80°F 24 hrs (bare)	Very Poor	Good
Hot Water Immersion Test 212°F 5 hrs (bare)	Very Poor	Good
Salt Spray—20 pct NaCl at 90°F for 250 hrs (one-coat alkyd paint)	Very Poor	Good
Performance Tests Applied In The Can Industry		
Cyclic Corrosion Test: 2 hrs at 32° F, followed by 24 hrs exposure in humidity chamber at 98 pct rel. humid., 110°F and 10 cycles (bare)	Very Poor	Good
3 pct NaCl—3 pct H_2O_2 immersion test at 75°F for 6 hrs (bare)	Very Poor	Good
3 pct NaCl—3 pct H_2O_2 immersion test at 75°F for 18 hrs (enameled)	Very Poor	Good
Standard corn test (enameled)	Poor	Good
Synthetic corn test (enameled)	Very Poor	Good
Synthetic meat test (enameled)	Very Poor	Good
Enamel adhesion after fabrication of can ends	Good	Good

Another test was carried out in a manner similar to that of the synthetic corn test, except that a synthetic meat mixture was used and a pressure of 15 lbs for two hours was employed. Hinac-treated panels again showed no enamel failure, while failure on untreated panels was severe.

In still another test, diagonal scratches were made through the enamel to the steel surface. Panels were immersed in a solution containing 3 pct NaCl and 0.3 pct H_2O_2 at 75°F for 18 hr. The panels were then rinsed, dried and examined for corrosion. In the case of Hinac-treated panels, corrosion was limited to the actual bare scratches, with no underpaint film penetration. The untreated blackplate was completely corroded under the enamel. The two conditions are shown in the accompanying photo.

The can companies also conducted long-term storage tests on Hinac containers with a variety of foods and non-foods. They were found to perform very well.

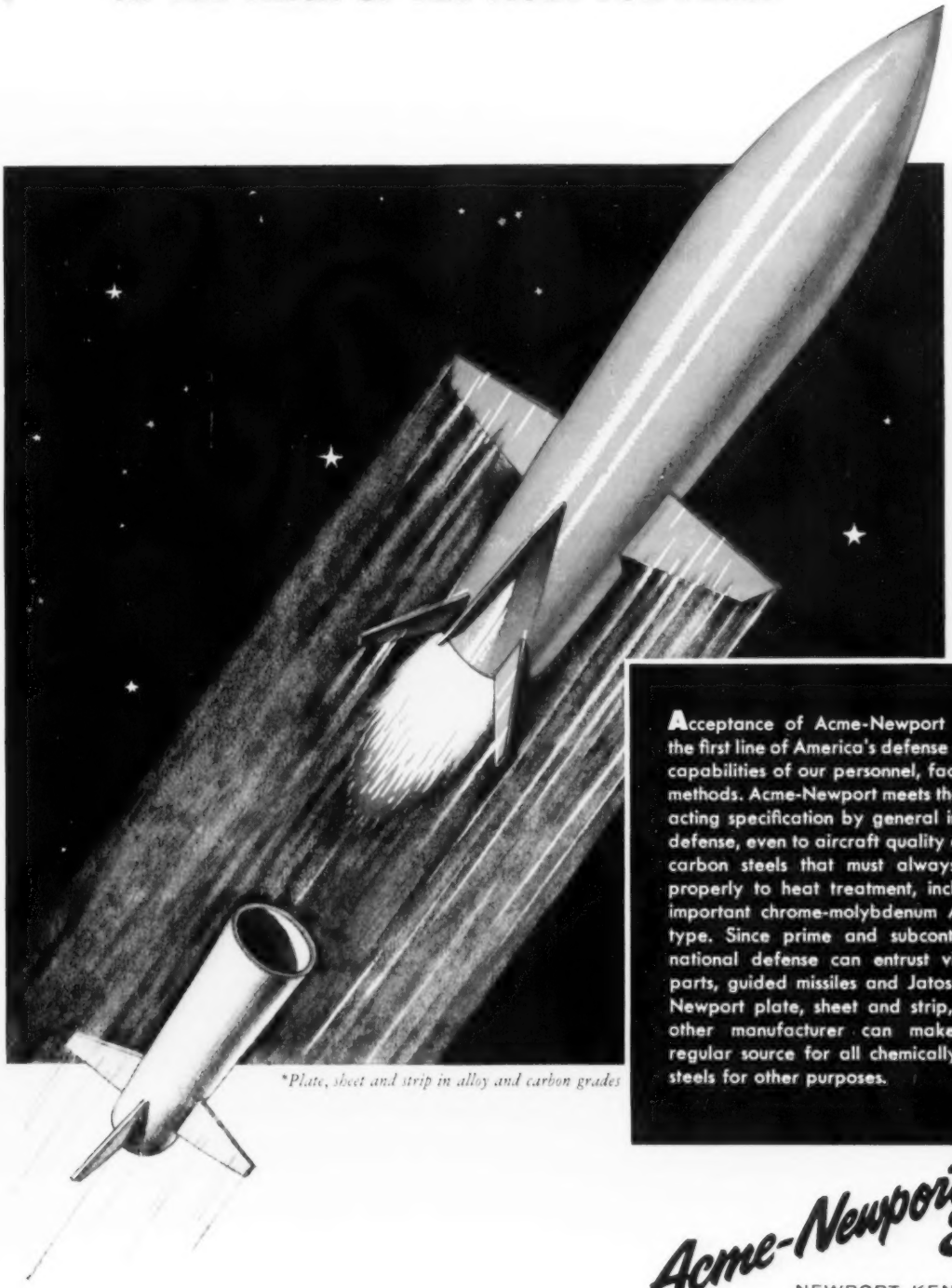
Not Just For Cans — Because features of the Hinac Process closely parallel those of electrolytic tin plating without requiring use of the strategic metal itself, Heintz reports that Hinac has been enthusiastically received by the can industry.

But its usefulness doesn't stop here. Hinac was developed for continuous and uninterrupted treatment of strip, and this covers a lot of territory. It works well on both ferrous and nonferrous metals, and should have strong potential in the sheet metal industry generally; anywhere a surface with good corrosion resistance and paint bonding qualities is required.

Right now the Hinac Process is still relatively new. Output at Bethlehem Steel's pilot plant is averaging something like 100 tons per day—a mere drop in the bucket in terms of total tinplate production. But the infant seems destined to grow; American Can is already planning for a line of its own.

Acme-Newport

AIRCRAFT QUALITY STEELS*
IN THE THICK OF THE FIGHT FOR PEACE



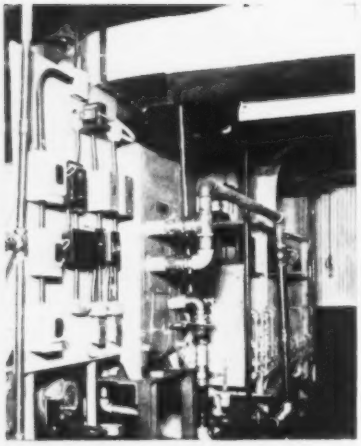
*Plate, sheet and strip in alloy and carbon grades

Acceptance of Acme-Newport steels for the first line of America's defense attests the capabilities of our personnel, facilities and methods. Acme-Newport meets the most exacting specification by general industry or defense, even to aircraft quality alloys and carbon steels that must always respond properly to heat treatment, including the important chrome-molybdenum AISI 4130 type. Since prime and subcontractors in national defense can entrust vital plane parts, guided missiles and Jatos to Acme-Newport plate, sheet and strip, then any other manufacturer can make this his regular source for all chemically accurate steels for other purposes.

Acme-Newport Steel COMPANY

NEWPORT, KENTUCKY

A SUBSIDIARY OF ACME STEEL COMPANY



NIAGARA *Aero* HEAT EXCHANGER

***quickly* pulls down the initial peak load of heat in quenching... and saves cooling water**

● You gain in accurate control of quench bath temperatures and quickly effective capacity to handle initial peak load of heat in quenching. You prevent production set-backs, increase the output of your heat treating department, prevent oil fires, save losses from rejected parts.

Niagara *Aero* Heat Exchangers give you this control in both furnace and induction hardening methods. They prevent both over-heating and over-cooling of the quench bath. Hundreds of heat treaters know they prevent many troubles, constantly improve quality and increase production.

They quickly pay for themselves by saving cooling water coils and extend your quench capacity without extra water or cooling tower.

Write for Bulletins 120 and 132 giving complete information.

NIAGARA BLOWER COMPANY
Dept. IA-6-1, 405 Lexington Ave.
NEW YORK 17, N. Y.
District Engineers in Principal Cities of U. S. and Canada

MATERIALS ROUNDUP

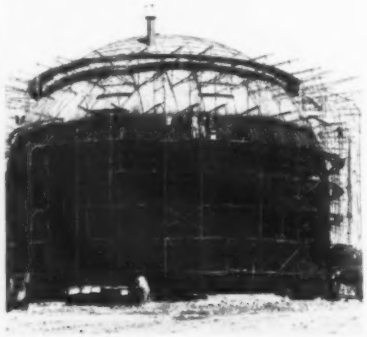
Insulation Doesn't Pick Up Moisture

Want to keep plant air-conditioning and heating bills down?

A new glass foam material used in nuclear reactor vessels insulates very effectively; moisture doesn't affect it.

▪ Insulating the shell of the first experimental boiling water nuclear reactor is a glass foam material. It seals the huge airtight steel cylinder which will serve as a containing vessel in the highly unlikely event of an explosion.

The reactor shell, also serving as an insulated enclosure for the air conditioned interior, is located at the Argonne National Laboratory, near Chicago. To insulate the structure, the project's engineers



Insulating this large reactor vessel is a glass foam material.

chose a glass foam produced by Pittsburgh Corning Corp. of Pittsburgh. Previously used on the General Electric Co. "atomic sphere" at Schenectady, N. Y., the insulation has a non-fibrous, sealed, cellular glass structure.

Vapor-proof Advantage — The fact that the material is vapor-proof is of double-value. Since it's unaffected by moisture, the insulating efficiency remains constant. It won't fluctuate due to moisture pick-up, either. For the same reason moisture will not cause it to deteriorate in service.

To insulate the vessel, studs were first welded to the steel surface. Three-inch thick blocks of the material were impaled on the studs after having their edges buttered with mastic. Spring clips were slipped over the studs to hold the insulation in place.

Earlier Method — Prior to this installation, the surface was sprayed with an asphalt cut-back, except for a small area at the top. Here, the individual blocks were completely coated with mastic on the back before being installed.

Diameter of the vessel is 80 ft. Essentially a cylinder with a hemispherical top and bottom, its height is 119 ft; 57 ft of this is below grade.

Coating Doesn't Peel

Paint peeling is practically nil for users of a new coating. Called Galvinoleum, the material applies right over brand-new, unpainted galvanized, aluminum or terne plate surfaces. In red, gray, green and

Want More Data?

You may secure additional information on any item briefed in this section by using the reply card on page 121. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

metallic colors, the coating doesn't peel. Tedious etching of the galvanized surface prior to application is absolutely unnecessary. Any high-quality oil-base house paint can be used over the coat. Rust-Oleum Corp., Evanston, Ill., produces the material.

Solders Hard To Join Aluminum Alloys

By soldering joints that are sometimes brazed or welded, two high temperature soldering materials promise to cut costs for some aluminum fabricators.

Developed by Aluminum Co. of America, Pittsburgh, the products are a high zinc solder and a soldering flux. The solder is 95-pct zinc, 5-pct aluminum. It joins all aluminum alloys and makes joints between aluminum and other metals. These include: copper, brass, steel, stainless steel, nickel, etc.

Heats Easily — With a melting range of 715 to 725°F, the solder heats by any conventional method. It works best when preplated in or near a joint, rather than being fed manually. Strength of the corrosion-resistant joints directly depends on lap length, with a length twice the thickness of the thinnest aluminum member suitable for most applications.

The new soldering flux is recommended for use with the solder. It applies dry or as a 70-pct flux, 30-pct normal propyl alcohol solution. It reacts at 720°F to wet aluminum with zinc; there are no restrictions regarding the method of heating it. Immediately following soldering, a flush with water heated to 180°F removes the flux.

Boosts Metal Powder

Metals made by powder metallurgy are less subject to radiation damage than conventionally produced materials. So points out a recently issued Small Business Administration publication.

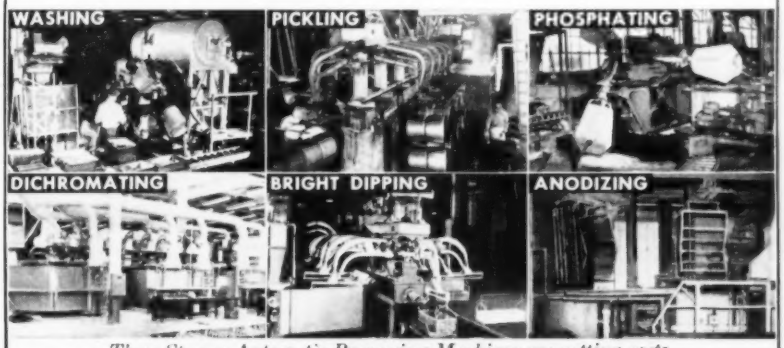
The leaflet, "Metal Powder Uses

THE FINISHING TOUCH

A. B. HOEFER, *Vice-President,* FREDERIC B. STEVENS, INC.

AUTOMATIC IMMERSION PROCESSING RESULTS IN REAL SAVINGS!

MORE AND MORE, PROCESS ENGINEERS are recognizing the money savings to be realized from automatic processing installations, i.e. *Anodizing and other aluminum immersion treatments; Blackening; Bright Dipping; Dichromating; Cleaning; Pickling; Washing; Phosphating* for rust prevention; wear resistance, and prior to cold drawing; *Stripping* as well as *Electroplating.*



These Stevens Automatic Processing Machines are cutting costs.

"PROFIT-MAKING MACHINES" was one term recently used by a Stevens Automatic Machine user. Money saved in labor, floor space, production control and similar costs, if tacked on the other end, could very easily be termed "profit."

IN ANALYZING AUTOMATIC MACHINE USERS at Stevens for the past three years we were interested in the increased number of processing applications which manufacturers are adapting to this versatile equipment.

AUTOMATION HAS INFLUENCED THESE INCREASES, for our automatic machines fit ideally into "straight line" production layouts and eliminate handling and human error so costly in today's modern manufacturing techniques. All of our machines can be equipped with automatic load and unload features and have flexibility which enables them to be used for a variety of metal treatments.

IF YOU ARE A PROCESS ENGINEER, or occupy a similar post of responsibility in your plant, contact your Stevens sales engineer or write for more information on automatic immersion processing as well as electroplating. Let us show you how you can recommend methods to save your company money. Write: Frederic B. Stevens, Inc., 1800 Eighteenth Street, Detroit 16, Michigan.

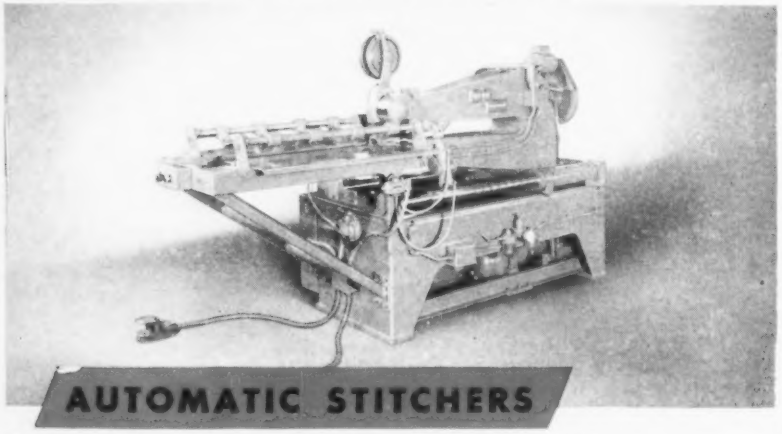
FREDERIC B. STEVENS INCORPORATED
YOUR METAL FINISHING SUPERMARKET
DETROIT 16, MICHIGAN

STEVENS 75 YEARS OF SERVICE

WAREHOUSES AND OFFICES IN PRINCIPAL CITIES

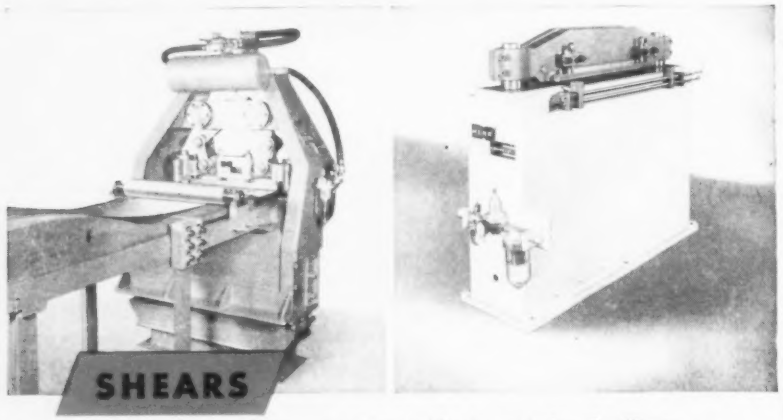
HERR EQUIPMENT

"Complete Processing and Handling Equipment . . . for any Ferrous or Non-Ferrous Material . . . That Starts — or Ends — as a Coil"



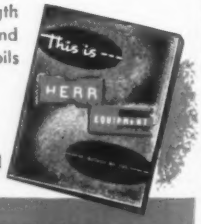
AUTOMATIC STITCHERS

Fast, dependable method of fastening the lead end of a new coil to the trailing end of a preceding coil. Entirely automatic. Produces a double row of locked stitches. Practical for strip of any width. Your samples stitched and returned promptly. Also automatic welders.



SHEARS

Fast acting single shears for use with hump tables in cut-to-length and press feed lines, and other applications to square crop the end of a coil. Also twin cut shears that remove the section where two coils were stitched or welded together for continuous processing.



Write for fully descriptive Bulletin No. 561 today!

THE HERR EQUIPMENT CORPORATION

1260 VINE STREET • WARREN, OHIO

CLEVELAND, INDIANAPOLIS AND BERKELEY, CALIFORNIA

in the Small Plant," suggests that there is definite promise for powder metallurgy in the manufacture of fuel elements and other apparatus used in nuclear reactors. One reason for this, it says, is metal powder's comparative freedom from impurities.

Coat Strips Off

A new strip-off plastisol coating provides protection for all types of metal parts. Formulated by Auburn Button Works, Inc., Auburn, N. Y., the material is easy to apply; unskilled labor can easily heat the parts and dip them into the plastisol. That's all there is to it. While covering the parts, it offers them protection from rust, dust, dirt, corrosion and some damage. It peels-off readily when necessary.

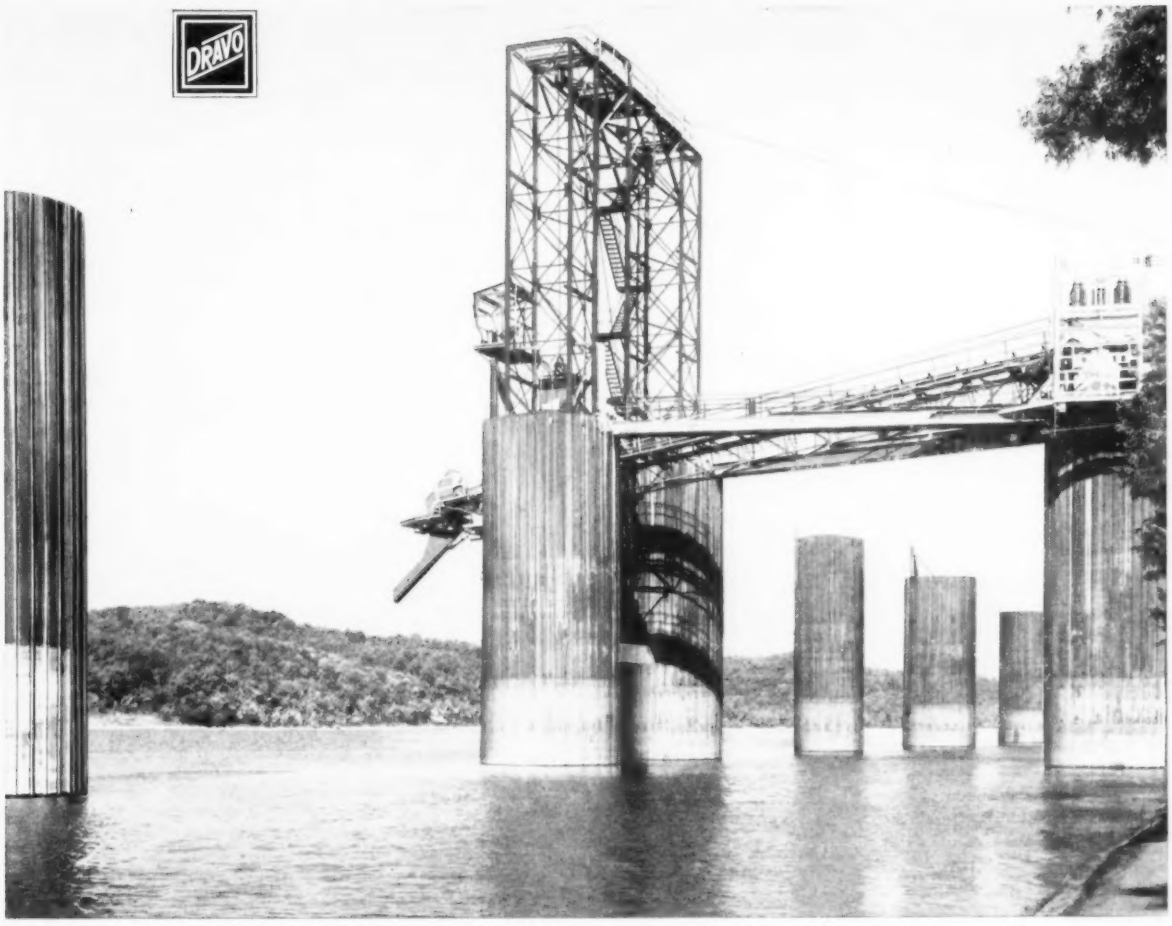
Insulates Assemblies

Two new 100-pct silicone insulating resins pour freely without solvents. The materials cure to form void-free high temperature impregnations or encapsulations for electric, electronic or similar equipment.

At room temperature, the viscosity of one resin is 2500 centistokes; the other, 100 centistokes. Either can be thinned by warming to 175°F before application; both blend in any ratio to achieve any intermediate viscosity. Dow Corning Corp., Midland, Mich., makes them.

Grease Is Versatile

With a lithium base, a new multipurpose grease performs many industrial lubrication jobs. A product of the Gulf Oil Corp., Pittsburgh, the grease tackles jobs normally requiring a variety of special lubricants. Such conditions are: high, low temperatures; action of water; high-speed bearing action; long storage. One obvious cost cut: less grease guns needed.



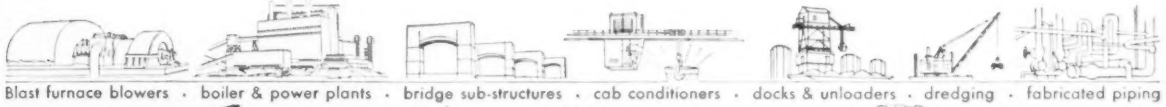
"MILLION TON" dock for new DeKoven Mine

Pittsburgh & Midway Coal Mining Company can load more than a million tons of coal annually at this modern, cellular type barge dock near Sturgis, Kentucky, on the Ohio River. A two-mile long, 42 inch conveyor belt connects the facility with the company's new DeKoven mine.

Eleven cells, three of which support the loading mechanism, are spaced along 1175 feet of shoreline. Constructed of interlocking sheets of steel piling driven to rock, each cell is filled with sand and gravel and topped with concrete. Ruggedness, economy and minimum maintenance make this an ideal type of dock for most purposes.

In the past eight years, Dravo has installed more than 100 of these docks for firms in the chemical, steel, coal, utility, railroad, petroleum and other industries. For more information on this or any of the products and services shown below, write to DRAVO CORPORATION, PITTSBURGH 25, PENNSYLVANIA.

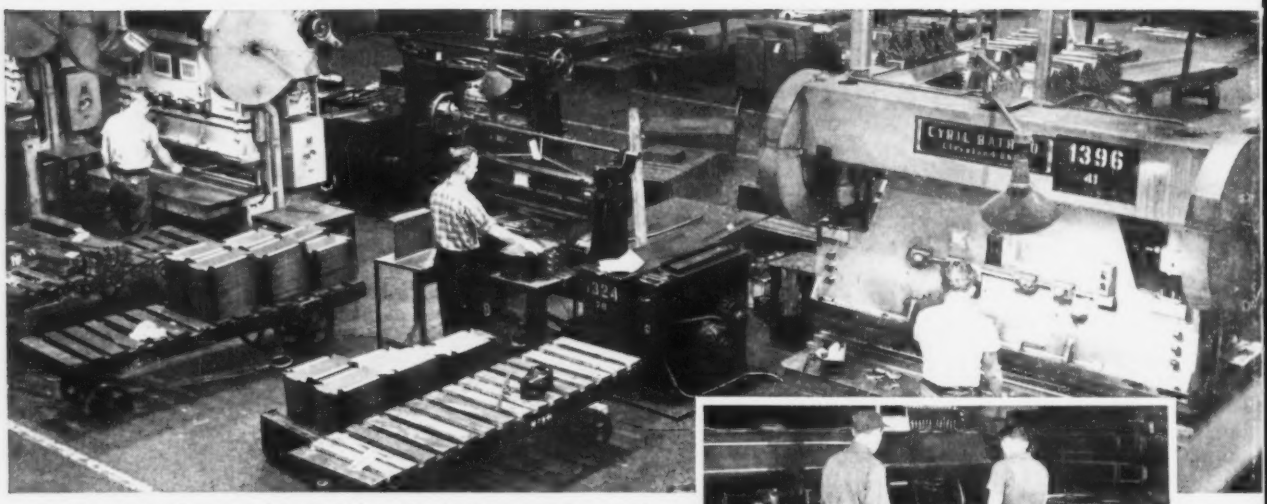
DRAVO
CORPORATION



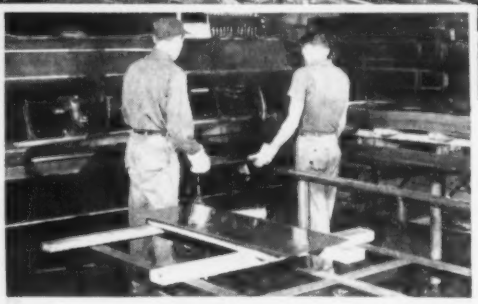
Blast furnace blowers · boiler & power plants · bridge sub-structures · cab conditioners · docks & unloaders · dredging · fabricated piping

foundations · gantry & floating cranes · gas & oil pumping stations · locks and dams · ore & coal bridges · process equipment · pumphouses & intakes

river sand and gravel · sintering plants · slopes, shafts, tunnels · space heaters · steel grating · towboats, barges, river transportation



1 PUNCHING— Presses used for punching holes, knockouts, and for stamping small parts are strategically located for efficiency. Some of them run at the rate of 108 strokes a minute, with capacities up to 250 tons. Equipment like this means high-speed production of big-volume runs at low unit cost.



2 SHEARING— Berger shears operate at speeds from 40 to 60 strokes a minute. They can cut sheet steel up to 14' on the shortest dimension . . . handle medium-hard stock up to $\frac{3}{8}$" thick. Berger designers and craftsmen know how to use this equipment to give you the most for your money.

PLANNING OR FABRICATING A SHEET STEEL PRODUCT?

...Republic can take the

You may not realize how many different products are made in Republic's Berger Division plants because many are fabricated for other manufacturers and marketed under their brand names. We will manufacture *your* product in volume runs—engineer, fabricate, finish, pack and ship, all to *your* specifications.

Some of our contract-fabricated products are completely assembled units with operating mechanisms installed. Others are sheet metal assemblies that leave our plants finished with a prime coat, ready for final finishing, assembly and packing by our customer.

Our large stock of standard tools and dies and the specialized equipment of our Berger Plants are available to you. Often we can reduce costly tooling investments because we already have the tools to do the job. Because you use our facilities, you can eliminate the overhead problems of building or expanding your plant.

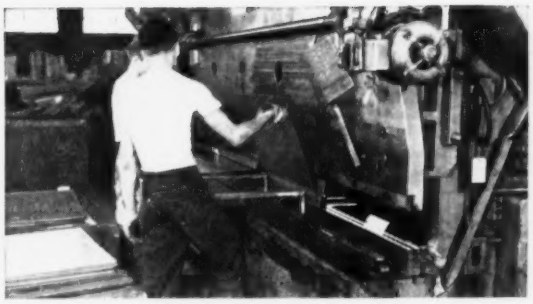
Constant research and development at Berger have resulted in advanced processes and equipment to make your fabricated sheet steel products more attractive, and more economical. Furthermore, our facilities and fabricating experience provide you with the same high quality you see in our own products—lockers, office furniture, shelving and steel kitchens.

If you have a sketch or blueprint, send it along to us with complete specifications. We'll tell you promptly what Berger's specialized service can do for you. Learn more details in Bulletins 793 and 908.

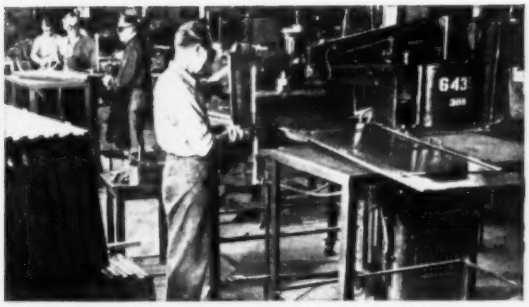
REPUBLIC

REPUBLIC STEEL

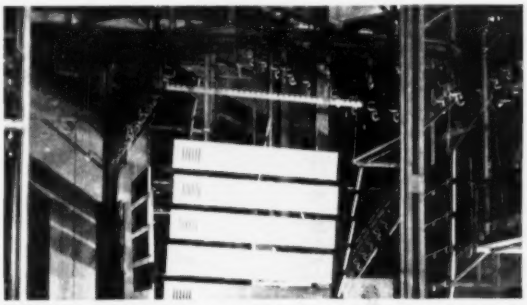
World's Widest Range of Standard Steels



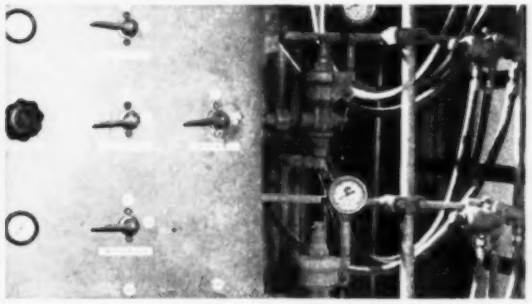
3 FORMING—Brakes run at speeds as high as a stroke a second, and range in capacity from 60 to 500 tons. This means that Berger can handle a variety of production, and various gages, simultaneously. Your product keeps moving.



4 WELDING—Berger's major plant facilities include the very latest welding equipment and techniques. Eighty-eight welders are strategically located to do the best job . . . and do it most economically. When Berger takes your contract, your products keep rolling.

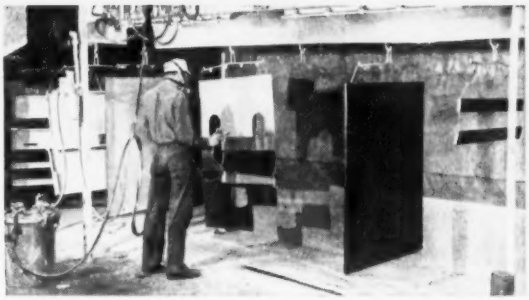


5 BONDERIZING—We're proud of our finishing facilities. And, our new Bonderizing equipment makes them better than ever. As it passes along our Bonderizing line, your product is given exceptional ability to take and hold a fine painted finish—and it acquires superior rust-resistance.



6 ELECTROSTATIC SAFEGUARD—Another reason why Berger-applied finishes are unexcelled. Not one speck of dust can penetrate this electrostatic screen to settle on your product. Electrostatic recovery of atomized paint means greater economy, too.

whole job off your hands



7 PAINTING—We're equipped to paint over 87,000 square feet of steel surface each hour! Equipment includes degreasers for cleaning mill stock parts, mechanical Bonderizers, electrostatic safeguards, 32 spray booths and six dip tanks. Plus 40 baking ovens to assure beautiful, lasting, baked-on finishes that match your sample for color.

8 PACKING AND SHIPPING—The product above is being shipped knocked-down, in cartons. More Berger packing equipment includes newest machines for crate-making and automatic nailing. Beyond our doors, more advantages—you are shipping from centrally-located Canton, Ohio. From planning to packaging, Berger can take the whole job off your hands.

STEEL

and Steel Products

REPUBLIC STEEL • BERGER DIVISION
Dept. C-4002
1040 Belden Avenue, Canton 5, Ohio

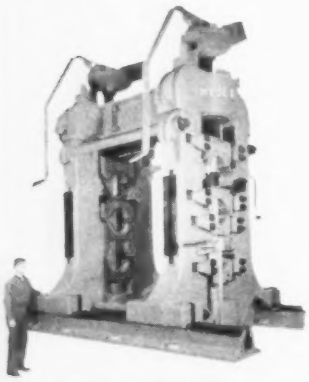
Please send Bulletins 793 and 908 describing Berger fabricating facilities and abilities.

Name _____ Title _____

Firm _____

Address _____

City _____ Zone ____ State _____

Hyde Park
RED CIRCLE Rolls ALLOY-CHILLED
Rolling Mill Equipment
Outstanding in quality and in performance Hyde Park Rolling Mill Equipment has enjoyed the respect of the industry for more than fifty years.

Bar Mills
Merchant Mills
Sheet and Strip Mills
Pinion Stands
Roller Tables
Reduction Drives
Stretcher Levellers
Guillotine Shears
Sheet Mill Shears
Roll Lathes
Special Machinery
Machine Work
Hyde Park
FOUNDRY & MACHINE CO.
Hyde Park, Westmoreland County, Pa.
ROLLS
ROLLING MILL MACHINERY
GREY IRON CASTINGS

FREE TECHNICAL LITERATURE

New Catalogues And Bulletins

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, p. 121.

Acid Salt

Water soluble, a dry acid powder is fully described in a technical data sheet. The new material is a carefully balanced mixture of acid salts, activators and surface active agents. (Mac Dermid, Inc.)

For free copy circle No. 1 on postcard, p. 121

Noise Control

Noise control is discussed in an 8-page brochure. It illustrates applications of pneumatic mufflers which eliminate exhaust noises of air operated equipment. (Allied Witan Co.)

For free copy circle No. 2 on postcard, p. 121

Motors, Timers

Two new bulletins describe special timers and motors. One sheet covers motors and elapsed time indicators; the other, repeat cycle timers and time delay relays. (The A. W. Haydon Co.)

For free copy circle No. 3 on postcard, p. 121

Mechanical Seals

Perfect mechanical seal installation without measurement is now "built in" with a new pre-set ring feature. Anyone with simple hand tools now can perfectly install or replace the mechanical seals without taking measurements or referring to installation drawings. Literature describes the seals. (Byron Jackson Pumps, Inc.)

For free copy circle No. 4 on postcard, p. 121

Roof Ventilator

A 4-page folder covers power roof ventilators. (Clarage Fan Co.)

For free copy circle No. 5 on postcard, p. 121

Screw Machine Feed

A bulletin describes a Burns-style taper lock master feeder for Acme - Gridley, Cone, Greenlee, Gridley, and New Britain screw machines. (Sutton Tool Co.)

For free copy circle No. 6 on postcard, p. 121

Motors

Weather-protected motors in ratings from 250 to 900 hp are described in a bulletin. (Allis-Chalmers Mfg. Co.)

For free copy circle No. 7 on postcard, p. 121

Fittings

Containing 48 pages, a catalog covers brass tube fittings. (The Weatherhead Co.)

For free copy circle No. 8 on postcard, p. 121

Plant Safety

Plant safety in materials handling operations is stressed in a firm's kit. It includes a guide booklet on correct lift truck operation, safety posters and colorful directional and warning signs. (Towmotor Corp.)

For free copy circle No. 9 on postcard, p. 121

Blowpipes

Welding blowpipes are described in a 6-page folder. Operation on low-pressure acetylene is a unique feature of these blowpipes. (Linde Co.)

For free copy circle No. 10 on postcard, p. 121

Silicate

A company publication mentions 22 widely accepted uses for sodium and potassium silicates. (Philadelphia Quartz Co.)

For free copy circle No. 11 on postcard, p. 121

Safety Items

Listing various plant safety items is an 84-page catalog. It deals with gloves, protective apparel, head and eye protection, fire extinguishing equipment, first aid items, etc. (Seco Safety Products Co.)

For free copy circle No. 12 on postcard, p. 121

Lithium

Lithium is the subject of a 15-page tabbed booklet. It describes the material's properties, uses, research potentials and availability. (American Lithium Institute, Inc.)

For free copy circle No. 13 on postcard, p. 121

Oil Seals

Oil Seals are listed in a 68-page catalog. It lists all oil seals carried in stock. A section describes various materials available for use as sealing members. (Chicago Rawhide Mfg. Co.)

For free copy circle No. 14 on postcard, p. 121

Fasteners

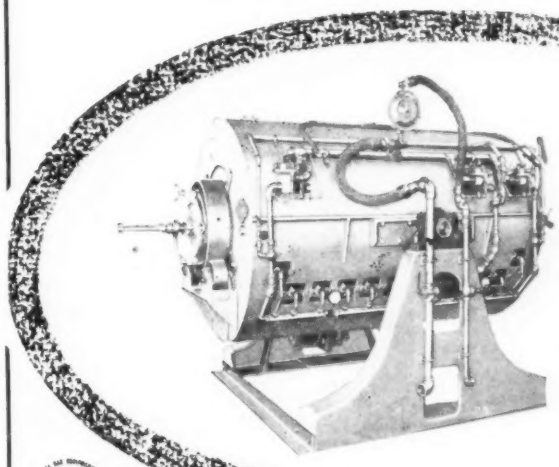
Flat nut fasteners for use in high-speed assembly operations are detailed in new literature. Data on length, width, material thickness, screw size, and other information of importance is included in easy-to-read form. (The Prestole Corp.)

For free copy circle No. 15 on postcard, p. 121

Burnishing

Better burnishing suggestions appear on a wall chart. It illustrates

LOWEST COST CARBURIZING in AGF Rotary Carburizers



AGF Rotary Carburizers are available in sizes to suit your requirement—large or small.

Model No. 4, illustrated, handles up to 1200 lbs. per load.

YOU GET THESE ADVANTAGES:

Lowest investment cost for heat treating capacity

The relatively simple design and construction of the AGF Rotary Carburizer enables you to purchase more heat treating furnace capacity per dollar expended than can be obtained with any other type of furnace.

"Point of Contact" case variations eliminated

Gentle tumbling of the work as the retort rotates, eliminates "point of contact" case variations which can occur in furnaces when parts remain stationary. Every single piece is uniformly heated and exposed to the action of the atmosphere gas.

Versatility increased

The AGF Rotary Carburizer is a versatile batch type furnace that can quickly convert from one process to another for different work charges. Clean hardening, annealing, normalizing, etc., can be accomplished without any modifications to the furnace.

Proven Acceptance

Leading manufacturers of roller bearings, ball bearings, conveyor chains, small parts as well as commercial heat treaters have chosen the low cost AGF Rotary Carburizer method. Let us explain its particular advantages for your application today.

Write today or fill out the coupon at right. No obligation, of course.

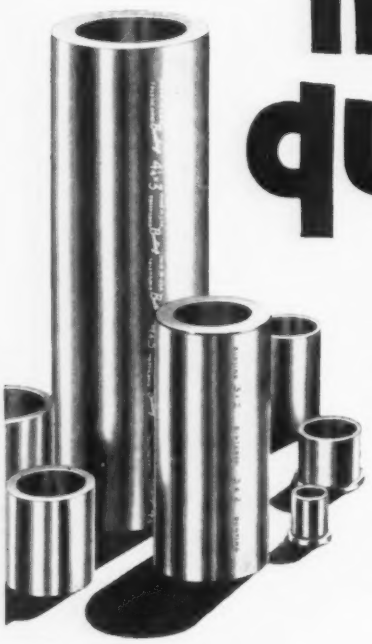
☐ Send me full information about AGF Carburizers.
☐ Have a factory trained engineer call on me.

Name ..... Title .....
Company .....
Address .....
City ..... State .....

AMERICAN GAS FURNACE CO.
1004 LAFAYETTE STREET — ELIZABETH 4, N. J.
"Pioneers since 1878"

YOU GET more* WHEN
YOU BUY BEARINGS FROM
YOUR Bunting® DISTRIBUTOR

*more quality



PRECISION, QUALITY AND COMPLETE FINISHING make possible the simplest and most economical application of Bunting Bearings. Bunting Cast Bronze Bearings and Bars and Bunting Sintered Powdered Oil-filled Bearings and Bars give you components that save time and expense in both production and maintenance operations. Bunting distribution of these stock products through leading, responsible distributors in all areas brings Bunting quality right to your door.

Your Bunting distributor is listed in the classified section of your telephone directory usually under Bars—Bronze, and Bearings—Bronze. Two modern Bunting factories and eleven Bunting Branch Warehouses expedite distribution in all areas. Write, or ask for catalogs giving complete dimensional listings and technical data.

Simplified standardized size listing including all ASTM sizes—an exclusive Bunting feature.

Bunting

BUSHINGS, BEARINGS, BARS AND SPECIAL PARTS OF CAST BRONZE AND POWDERED METAL.

The Bunting Brass and Bronze Company • Toledo 1, Ohio • Branches in Principal Cities

FREE LITERATURE

burnishing cones, balcones, diagonals, ovalbals, and pins. In addition to showing sizes available, the chart also indicates actual dimensions of these metallic burnishing materials. (Pioneer Steel Ball Co.)

For free copy circle No. 16 on postcard, p. 121

Gages

Gage products available from one maker are listed in a 40-page catalog. It contains specifications, prices and sizes of: thread plug gages, thread ring gages and special gages. (Cadillac Gage Co.)

For free copy circle No. 17 on postcard, p. 121

Hydraulic Power

Hydraulic power units and test stands are featured in an 8-page brochure. It includes engineering drawings. (J. N. Fauver Co., Inc.)

For free copy circle No. 18 on postcard, p. 121

Pipe, Fixtures

An 8-page catalog describes fixtures used in installing plumbing, heating, air conditioning and sprinkler systems. (Hupp Corp.)

For free copy circle No. 19 on postcard, p. 121

End Mills

End mills, Woodruff keyseat cutters, center reamers and combined drills and countersinks are listed in a catalog. (Fastcut Tool Co.)

For free copy circle No. 20 on postcard, p. 121

Wire Rope Slings

Three folders suggest applications for wire rope slings. (Wickwire-Spencer Steel Div., Colo. Fuel and Iron Corp.)

For free copy circle No. 21 on postcard, p. 121

Ceramics

Ceramic materials are listed and described in a 20-page catalog. (Star Porcelain Co.)

For free copy circle No. 22 on postcard, p. 121

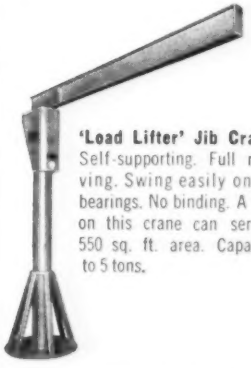
Keep Work Moving ***FAST!***

The Series "600" 'Load Lifter' Electric Hoist speeds production — lifts ½-ton loads at 30 FPM at the push of a button. Safe 24-volt push-button control starts this fast hoisting instantly. Two powerful, independently operating brakes are provided for extra safety. Each alone can hold the full load.

The "600" 'Load Lifter' is ruggedly built to meet industry's need for long-term hoisting economy and freedom from costly maintenance. Servicing is easy and safe in the air. No need to take the hoist down. Power and operating costs are low because the "600" mechanism is simple and frictional losses are minimized.

If you want lug or hook suspension, plain trolley or motor-driven trolley — you can have the "600" 'Load Lifter' to fit the need. Also available are current collectors, conductor cord trolleys and other devices to give you efficient, money-saving hoisting equipment from a single source. Capacities ½ and 1 ton. *Ask your "Shaw-Box" Distributor for complete details or write us for Bulletin 408.*

Series "600" 'Load Lifter' Electric Hoist with motor-driven trolley. Trolley available separately for hoists already in service. Installation takes only two hours with common tools.



'Load Lifter' Jib Cranes. Self-supporting. Full revolving. Swing easily on ball bearings. No binding. A hoist on this crane can serve a 550 sq. ft. area. Capacities to 5 tons.

Cord Reels to keep the hoist conductor cord taut and up out of the way of work and worker. Also useful for small cranes and other devices with motors up to 1 HP.

57 F-1

MAXWELL MANNING MM&M MOORE INC. TRADE MARK

'Load Lifter'® ELECTRIC HOISTS

MANNING, MAXWELL & MOORE, INC.

SHAW-BOX CRANE & HOIST DIVISION

382 West Broadway • Muskegon, Michigan

Builders of "SHAW-BOX" and 'LOAD LIFTER' Cranes, 'BUDGIT' and 'LOAD LIFTER' Hoists and other lifting specialties. Other Divisions produce 'ASHCROFT' Gauges, 'HANCOCK' Valves, 'CONSOLIDATED' Safety and Relief Valves, 'AMERICAN' and 'AMERICAN-MICROSEN' Industrial Instruments, and Aircraft Products.

In Canada: *Manning, Maxwell & Moore of Canada, Ltd., Avenue Road, Galt, Ontario.*

LEAD-LUBRICATED STEELS . . .

FOR "BUILT-IN" PRODUCTIVITY

Lead existing in alloy or carbon steels in the form of sub-microscopic particles acts as a natural lubricant. Its effect on your operating costs will be pleasantly surprising.

Faster speeds, faster feeds, better finish and longer tool life possible with these free machining steels are helping hundreds of manufacturers to increase production and to lower costs.

See what "lubricated" steels can do for you—specify leaded on your next Aristoloy order. Get the cost-cutting benefit of "built-in" productivity.

For further details,
write for free booklet,
"Lead Treated Steels."

ARISTOLOY STEELS

COPPERWELD STEEL COMPANY • WARREN, OHIO
Steel Division

EXPORT: Copperweld Steel International Co., 225 Broadway, New York 7, N. Y.

FREE LITERATURE

This section starts on Page 116

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just circle the number and mail the postcard.

Plug Gage Data

A handy chart lists all popular gage plug types, sizes and specifications. The chart saves time in selecting one maker's plugs. (Gage Div., Pratt & Whitney, Inc.)

For free copy circle No. 23 on postcard

Motors

Re-rated fractional horsepower motors are illustrated in a booklet. These units come in frames 560 and 480 (NEMA frames 56 and 48). They are available in ratings from one to ⅛ hp in polyphase, permanent split capacitor, capacitor single phase and (in the smaller ranges) split phase types. (Robbins & Myers, Inc.)

For free copy circle No. 24 on postcard

Environmental Units

Environmental temperature cabinets are described in a folder. This equipment is mechanically operated from —225 to +350°F. Standard models illustrated are 1-cu ft to 45-cu ft units. (Webber Corp.)

For free copy circle No. 25 on postcard

Self-locking Nuts

Self-locking nuts are analyzed in a 4-page brochure. (The Automatic Nut Co., Inc.)

For free copy circle No. 26 on postcard

Portable Nibbler

Portable and versatile, a lightweight pneumatic metal cutting tool cuts up to 55 ipm through 10 gage stainless steel without distortion on either side of the cut. It eliminates need for expensive stationary equipment or dangerous torches. It is safe, powerful, economical and effortless to operate. These are some of the facts listed for the nibbler in a data sheet now available. It also includes specifications. (Fenway Machine Co.)

For free copy circle No. 27 on postcard

Isotope Radiography

Now is the time to investigate all the advantages of isotope radiography. So suggests a company's bulletin. It describes the firm's gamma ray camera and what it can do. (Tracerlab, Inc.)

For free copy circle No. 28 on postcard

Stud Welding

How to get the best results from stud welding equipment is told in a booklet. It includes a trouble-shooting chart with procedures for correcting unsatisfactory conditions. A section of the manual covers the welding of large diameter studs. (Nelson Stud Welding Div., Gregory Industries, Inc.)

For free copy circle No. 29 on postcard

Automatic Filters

Automatic filters for lubricating oils and coolants are described in a 4-page brochure. (Bowser Inc.)

For free copy circle No. 30 on postcard

Furnace Fume

Why Live with Electric Furnace Fume Problems? So asks an 8-page booklet. It describes how to overcome the problem. (Wheelabrator Corp.)

For free copy circle No. 31 on postcard

Adjustable Gage

An adjustable indicator gage is announced in a 4-page folder. It explains four typical gage applications: checking center-to-center distances between cone shaped holes; using them with air gaging equipment; checking diameters of blind holes, and measuring the outside and inside diameters of shallow circular slots. (Ellstrom, Inc.)

For free copy circle No. 32 on postcard

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. 6/6/57

Circle numbers for Free Technical Literature or information on New Equipment:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70

If you want more details on products advertised in this issue fill in below:

Page .....Product .....

Page .....Product .....

Page .....Product .....

.....

Your Name

.....

Title

.....

Company

.....

Co. Address

.....

City Zone

.....

State

FIRST CLASS PERMIT No. 36 (Sec. 34.9 P.L.&R.) New York, N. Y.

BUSINESS REPLY CARD

No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

THE IRON AGE

Post Office Box 77

Village Station

NEW YORK 14, N. Y.

BUSINESS REPLY CARD

No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

THE IRON AGE

Post Office Box 77

Village Station

NEW YORK 14, N. Y.

FIRST CLASS PERMIT No. 36 (Sec. 34.9 P.L.&R.) New York, N. Y.

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. 6/6/57

Circle numbers for Free Technical Literature or information on New Equipment:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70

If you want more details on products advertised in this issue fill in below:

Page ..... Product .....

Page ..... Product .....

Page ..... Product .....

.....

Your Name

.....

Title

.....

Company

.....

Co. Address

.....

City Zone

.....

State

FREE LITERATURE

Gages

Electric limit contact gages which permit instant observation of gaging results via flashing signal lights are covered in a brochure. (George Scherr Co., Inc.)

For free copy circle No. 33 on postcard

Zinc Coated Steel

Tight zinc coated steel is the subject of a dozen page booklet. (Weirton Steel Co.)

For free copy circle No. 34 on postcard

Welding Controls

Precise welding controls are discussed in a bulletin. These controls use Dekatron tubes in counting circuits that control welding time. (Taylor-Winfield Corp.)

For free copy circle No. 35 on postcard

Electrolizing

How electrolizing overcomes friction, wear, abrasion, galling and fretting corrosion problems and increases mechanical reliability is described in a 24-page booklet. (The Electrolizing Corp.)

For free copy circle No. 36 on postcard

Furnace

In 6 pages, a folder details a 60-cycle induction combined melting and holding furnace. This unit is for continuous supply of molten aluminum to a continuous casting machine. (Ajax Engineering Corp.)

For free copy circle No. 37 on postcard

Magnesium

Magnesium tooling plate for jigs and fixtures is discussed in a folder. (Dow Chemical Co.)

For free copy circle No. 38 on postcard

Service School

The field service school of an industrial truck maker now has available an 8-page brochure. It describes facilities, methods of teaching and courses for the school in teaching maintenance and repair of gas, electric and LP-gas powered fork trucks, powered hand trucks and straddle carriers. (Clark Equipment Co.)

For free copy circle No. 39 on postcard

Pump

A specification sheet gives details on a new vertical submerged type centrifugal pump. The pump is equipped with an integral ⅛ hp 3 phase or 1/10 hp single phase motor. The motor is totally enclosed with a NEMA standard flat face mounting and is designed for continuous duty. (Brown & Sharpe Mfg. Co.)

For free copy circle No. 40 on postcard

Brazing

Low temperature brazing is the subject of a firm's bulletin. It tells about a comparatively new method for joining aluminum. (Handy & Harman.)

For free copy circle No. 41 on postcard

Motors

Fractional horsepower motors are the subject of a 16-page bulletin. It illustrates design advantages and shows components in integrated insulation systems of general purpose fractional horsepower motors. (General Electric Co.)

For free copy circle No. 42 on postcard

Mass Spectrometer

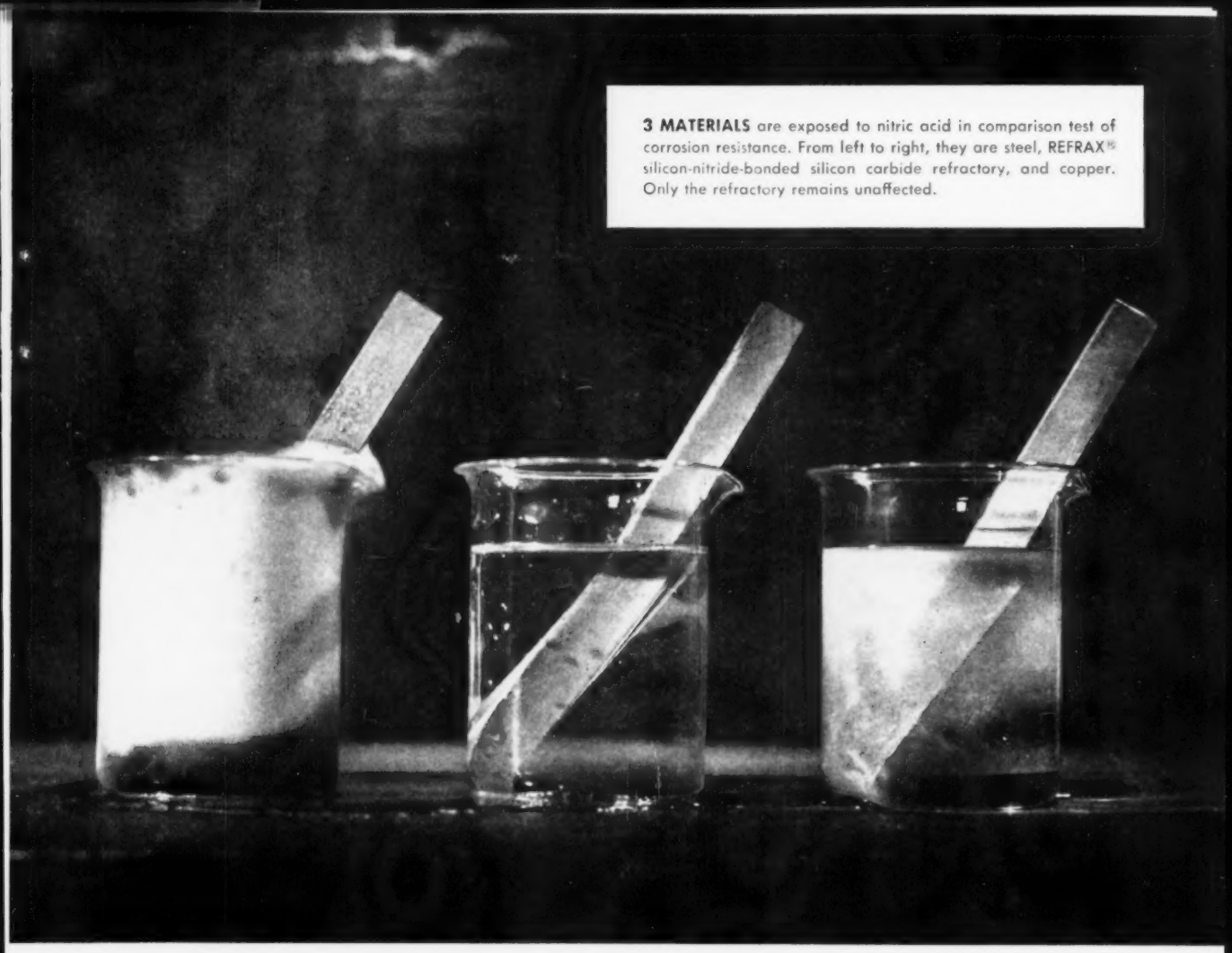
Two bulletins tell about a maker's new mass spectrometer and its process refractometer. (Consolidated Electrodynamics Corp.)

For free copy circle No. 43 on postcard

Drum Agitator

A data sheet outlines features of a drum agitator. It describes a simple procedure for mounting in the threaded bung of a standard 55-gal drum. Also included is a thorough discussion of why drum agitation is necessary. A ready-reference chart shows recommended agitation times. (Prenco Products, Inc.)

For free copy circle No. 44 on postcard



3 MATERIALS are exposed to nitric acid in comparison test of corrosion resistance. From left to right, they are steel, REFRAX® silicon-nitride-bonded silicon carbide refractory, and copper. Only the refractory remains unaffected.

Refractories for outstanding **corrosion resistance**

Wherever the possibility of chemical attack exists, it pays to consider refractories as materials of construction. The picture shows why. In numerous corrosive applications, CARBORUNDUM'S refractories are proving superior to other materials. They resist many highly basic substances as well as acids, acid slags and fluxes.

Typical applications are: linings in controlled atmosphere furnaces, pumps and pump parts handling molten aluminum, nozzles spraying corrosive *and* abrasive liquids, linings in muriatic acid furnaces, retorts for reducing and refining zinc ores, linings for glass tanks, etc.

But seldom is a refractory called upon to provide corrosion resistance alone. It may be required to transmit heat rapidly, resist thermal shock cracking, withstand abrasion, carry heavy loads, retain initial purity . . . whether at low or extremely high temperatures.

These properties are but a few of those found in super refractories pioneered by CARBORUNDUM. Among them, you are almost certain to find answers to your material selection problems. For help, fill in and mail this coupon today.

CARBORUNDUM
Registered Trade Mark

—MAIL THIS COUPON TODAY—

Refractories Division,
The Carborundum Company, Perth Amboy, N. J., Dept. B67

Please send me:

- ☐ Forthcoming issue of Refractories Magazine
- ☐ Bulletin on Properties of Carborundum's Super Refractories
- ☐ Here is a description of my corrosion problem. Can you help me?

Name _____ **Title** _____

Company _____

Street _____

City _____ **Zone** _____ **State** _____

TAHLEN
NO-BOUNCE HAMMERS
for
FASTER WORK
and a new standard of
SAFETY!
Here's why!

The tubular head loaded with steel grit checks the tendency to bounce, and causes the hammer to *follow through* the stroke. This *exclusive*, patented feature of Tahlen Hammers increases speed and accuracy on any operation where a hammer is used ... reduces operator fatigue ... eliminates a frequent cause of *accidents* and material spoilage. The Tahlen Hammer delivers a *30% harder* blow because it controls and utilizes energy wasted in the bounce of an ordinary hammer.

SAVES MONEY, TOO! Tahlen Hammers with tenite tips outlast lead hammers 9 to 1.

® TAHLEN HAMMER CO.

4 SIZES
6 oz. to 3 lbs.
Tenite or Nylon tips

1729 First Ave. So., Seattle 4, Washington

Vacuum Holds Drill, Air Feeds It

Drilling thousands of holes in an item, in different places, can be a rough task. How to hold and position the drilling tool is a problem.

But an air-fed drill plus a unique vacuum holding setup does the job.

It does away with unwieldy fixtures.

▪ In building a large multi-jet seaplane, the Martin Co., Baltimore, faced the problem of drilling and countersinking thousands of rivet holes in the skins.

Formerly, the procedure would have been to construct a laminated plastic fixture with properly spaced locating holes. This would have been attached to the skin temporarily. However, such a fixture is costly to manufacture, unwieldy, and difficult to set up for normal 90° holes. It also requires special storage and handling facilities.

Now It's This Way—To do the job more accurately and economically, the company now uses a vacuum assembly for holding an Airfeeddrill in position.

The entire vacuum assembly has three parts: (1) a vacuum plate, (2) the slide assembly for holding the Airfeedrill, and (3) a clamp at each end of the slide assembly. A Martin-developed venturi fitting draws the vacuum which holds the vacuum plate to the panel. This venturi fitting operates off the compressed air system.

Assure Drill Position—Each end of the vacuum plate attaches to an adjustable clamp. These two clamps hold the slide assembly in place against the panel just above the vacuum plate. Pressure on the assembly is increased by tightening the clamps. Four feet on the slide assembly assure a 90° position of the drill.

A device holds the Airfeedrill and moves from one end of the slide assembly to the other. When it reaches the end, the vacuum is released and the entire assembly is moved to its next location.

Operator locks the air-fed drill into position.

Rests On Tracks—The entire assembly rests on a pair of tracks that are attached to the skin and located by positioning holes. Notches along the lower edge of the bottom track serve as locators for the Airfeedrill.

Want More Data?

You may secure additional information on any item briefed in this section by using the reply card on page 121. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

When the drill is correctly placed, a lever in the holding device fits into a notch. The Airfeedrill is preadjusted so that it drills the hole and then countersinks it to the proper depth. After the hole is drilled, the lever is raised and the drill is moved along until the lever reaches the next notch.

The saving in time and tooling cost amounts to approximately 85-pct over the former cost. More important, though, is its accuracy.

Removes Air, Then Adds Brazing Atmosphere

High quality brazes result from a new hydrogen brazing process. Tests indicate the method will also work with argon and helium. However, initial work is with hydrogen.

Developed by Metallurgical Consultants, Inc., Maywood, Calif., the process is designed to create a pure atmosphere such as is necessary for hydrogen brazing of stainless steels. When handling intricate assemblies with small parts, purging with gas alone is difficult and sometimes impossible. One way to obtain pure atmosphere is to remove the air before introducing the brazing atmosphere.

Gas For Air—In the new process, air is removed from the brazing retort by a compound mechanical vacuum pump. Then hydrogen is introduced into the retort, refilling the evacuated spaces with a brazing atmosphere.

Using this setup, difficult locations can be brazed. These might include honeycombs, heat exchange assemblies, intricate valve assemblies.

Vacuum-cleans Plane

Troubled with stray nuts, bolts and rivets messing up your equipment after it leaves the plant? That's exactly what worried engineers at Republic Aviation's Farmingdale, L. I., plant.

Failure to get foreign items out of aircraft can have disastrous results.

HAVE YOU TRIED THIS EXTRAORDINARY CLEANER?

Oakite Rustripper removes rust and heat scale in the same operation that removes oil. It avoids hydrogen embrittlement, damage to machined surfaces and other disadvantages of acid pickling.

Have you taken the four good steps?

How can cleaning costs be reduced 33% while cleaning quality is being improved? *See pages 7 and 8 of booklet.*

What are four easy ways to improve the average rinse tank? *See page 10.*

What causes hydrogen embrittlement during electrocleaning? What is the remedy? *See pages 15 and 16.*

Do you need a brass cleaner that gives better protection against tarnishing?

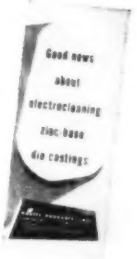
Oakite has a new brass cleaner that provides scientific protection against the oxygen that tarnishes brass and other copper alloys during the application of reverse current.

"It cut our cleaning rejects by more than 90%"

says a manufacturer who found that Oakite Composition No. 95 gave him:

BRIGHTER PLATING—All films removed . . . no residues, no undersurface shadows, no anodic blackening, nothing to impair the brightness of the electroplate.

FEWER REJECTS—Major causes of blistering and peeling eliminated . . . Consistent success in baking for 60 minutes at 300°F.



OAKITE PRODUCTS, INC.
30H Rector Street, New York 6, N. Y.

Send me the FREE booklets indicated below:

- ☐ Here's the best shortcut in the field of electroplating
- ☐ Four good steps toward better electroplating on steel
- ☐ What's NEW for electrocleaning brass and other copper alloys
- ☐ Good news about electrocleaning zinc-base die castings

NAME _____

COMPANY _____

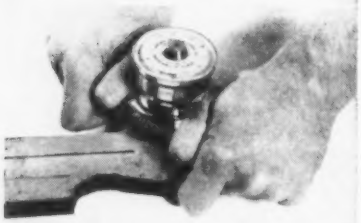
ADDRESS _____

FREE
For further information, ask for booklet

OAKITE

Technical Service Representatives in Principal Cities of U.S. and Canada

make hardness tests
ANYWHERE



with this lightweight,
portable NEWAGE tester

Test any size, shape or type of metal anywhere! Use the versatile, 30 oz., portable, precision NEWAGE tester and eliminate the time, trouble and labor of getting work to a bench tester. Just press the hand grips and get answers in 30 seconds—inside or outside the plant, office or laboratory.

- no clamps, no jaws
- no restrictions to size, shape or type metal
- no calculations or conversions
- no skill required
- accuracy guaranteed by individual calibration

available in scales corresponding to Rockwell and Brinell

Write today for demonstration or booklet

NEWAGE
INTERNATIONAL, INC.
222 OLD YORK ROAD • JENKINTOWN, PA.
Suburb of Philadelphia

Shorten
load
handling
time
with a

READING CRANE!

● One well-known stove manufacturer wanted to speed-up assembly—a call to Reading Engineers led to complete solution. A 10-ton, double I-Beam, cab-controlled Reading Crane brought even better results than expected.

Get complete information from our latest 16-page bulletin "The Why and How of Faster Production". Write today.

READING CRANE
& HOIST CORP.
CHAIN HOISTS • OVERHEAD TRAVELING CRANES • ELECTRIC HOISTS
2101 ADAMS ST., READING, PA.

TECHNICAL BRIEFS

A stray bolt, for example, might work its way into the air-intake duct of a jet. If sucked into the engine it could cause considerable damage to the turbine blades.

To prevent this, the firm now uses Spencer industrial vacuum cleaners to clean-out strays.

Material Improves Openhearth Heats

Commercial production is underway on a new exorthermic manganese alloy. Specially designed for ladle additions of 1 to 2-pct manganese to openhearth heats, the material is a product of Electro Metallurgical Co., a division of Union Carbide Corp. The entire addition of the ferromanganese alloy may be made to the ladle before the heat is tapped.

As a result of stirring by the strong exothermic reaction, manganese segregation is cut down; the recovery of manganese is both high and consistent.

Looks Good — Extensive field testing indicates that adding the product to the ladle has many advantages when producing openhearth steels containing manganese in the range of 1.00 to 1.90-pct. Ladle additions of the ferromanganese improve the recovery of manganese by 10 to 15-pct, the company says.

A higher, more consistent recovery of manganese allows better control of the manganese level in the final steel product. Also, when melting fine-grained steel where aluminum is added as a grain refining element, the material's unique exothermic reaction promotes consistent recovery of the readily oxidizable aluminum.

X-rays Small Items

Miniature radiography is helping researchers check the reliability of tiny electronic components. X-rays coupled with photographic enlargement of the radiograph yield useful information on failure in about 75-pct of the cases.

In use at Battelle Institute, Columbus, Ohio, the technique is nondestructive, inexpensive, and rapid. Components examined are approximately 0.25-in. long. Photographic enlargements of them are about 2.5-in. long.

Plastic Surface Plates

Grinding and polishing granite to close tolerances just isn't done anymore by one auto body maker. Instead it uses plastic surface plates.

The plastic surface plates aren't all plastic, though. They are acutally made of fine grain granite in the rough; over this is a coat of a special plastic material. Result: a smooth, hard surface.

Accuracy, too—These plates are accurate within 0.002-in. total indicated reading of a true plane across corners. And users do precision work on them. They're well within the required tolerances for many

WARD
STEEL
CO.

PROMPT WAREHOUSE SERVICE ONLY
Most Complete Stock in America of
BLUE TEMPERED SPRING STEEL
We believe that the way to sell is to carry a stock which permits satisfying any reasonable warehouse demand.

87B Rindge Ave. Ext. Phone UN 4-2460
CAMBRIDGE 40, MASS.
Branch
3042-3058 W. 51st Street, CHICAGO, ILL.
Phone: Grovehill 6-2600

MOLY NEWS

CLIMAX MOLYBDENUM COMPANY, 500 FIFTH AVENUE, NEW YORK 36, N. Y.

Super-Strength Structural Steels Boost Minimum Yield Strengths to 150,000 psi.

Seven steel companies in the U. S. are now producing a group of "Super-Strength Structural Steels" with considerably higher yield strengths than the well-known "High-Strength Low-Alloy" steels.

These Super-Strength steels offer minimum yield strengths ranging from 55,000 to 150,000 psi. And they have other useful properties, depending on composition, including strength at moderate temperatures, toughness at low temperatures, and good wear resistance. Almost all of these steels contain molybdenum as an essential element.

The search for steels with greater yield strengths has gone on for many years. Before about 1930, carbon steels with a yield point of roughly 30,000 psi were standard for almost all structural purposes. Then came the development of "High-Strength Low-Alloy" steels. They boosted minimum yields into the 50,000 psi range.

Now, the newer Super-Strength Structural Steels are being welcomed by designers, who see in them a way to solve one of their major problems — to minimize weight and size while retaining quality and reliability.

. . . For more information on these steels, including their trade names and compositions, circle number 1 on the coupon.

Moly's High Hot Strength Shows Promise for Jets and Rockets

Molybdenum-base alloys were described at the 1955 American Rocket Society annual meeting as having the greatest promise for true high-temperature operation.

Missile and powerplant designers are interested in moly mainly for its high temperature strength. Molybdenum base alloys have been developed with higher useful strength at temperatures over 1600 F than any other presently known metallic material.

The jet propulsion field — including guided missiles and aircraft powered by rocket, ramjet, and turbojet engines — covers a tremendous variety of requirements and service conditions in respect to temperature, atmosphere, amount and type of stress, vibration, thermal shock, and prospective life. Molybdenum's properties make it a logical choice in many cases because it has:

1. High creep and rupture strength.
2. High tensile strength at high temperatures.
3. High modulus of elasticity.
4. A combination of high thermal conductivity, low specific heat, and low expansivity, which minimizes non-uniform temperature distribution and makes molybdenum insensitive to thermal shock.
5. High resistance to erosion by hot gases.
6. High melting point.

It seems safe to conclude that molybdenum-base alloys will become important structural materials in the jet propulsion field. And they will become essential for many parts operating at temperatures in excess of 1600 F.

. . . from "Molybdenum for High strength at High Temperatures," by R. Freeman and J. Briggs, JET PROPULSION, *February, 1957.*

For a copy of the complete article, circle number 2 on the coupon.

Moly Adds Strength and Corrosion Resistance to Titanium

Commercially pure titanium is fairly strong and highly corrosion-resistant. Alloying it, however, substantially increases these useful properties.

Molybdenum may prove to be one of the most useful of the alloying elements for titanium. Studies at Armour Research Foundation, for example, show that when molybdenum is used instead of vanadium, creep properties are greatly improved. At 1020 F, a stress of approximately 20,000 psi produces a creep rate of 10^{-4} in. per in. per hr in Ti-6 Al and Ti-6 Al-4 V, whereas 40,000 psi is required to produce the same creep rate in a Ti-7 Al-3 Mo alloy.

In summary, new alloy development is opening the way for titanium's extensive use in jet engines and air frames. Ti-Al-Mo alloys, for example, give better elevated temperature properties than the Ti-6 Al-4 V alloy now most widely used. And the alloy containing 7% Al and 3% Mo appears particularly promising.

Another Ti-Mo alloy contains 30 to 40% Mo. This alloy is claimed to resist boiling 40% sulphuric acid and boiling 20% hydrochloric acid as well as platinum, tantalum or gold. Such a retained beta alloy is weldable and could be fabricated into sheet. These corrosion-resistant characteristics would add to the value of all-beta Ti-Mo alloys.

. . . from "Molybdenum as an Alloy Addition for Titanium," by Harold Margolin, METAL PROGRESS, *February, 1957.*

For a copy of the complete article, circle number 3 on the coupon.

Moly Goes to Sea In A Sewer

Cast iron joint ring in pipe, before lowering into position. Joint rings were made by Alhambra Foundry Co., Ltd. and the concrete pipes poured by American Pipe and Construction Co.

Positioning 64 ton reinforced concrete sewer pipe sections puts quite a strain on the cast iron joint rings used to join them. Especially when the job is done under water at depths up to 210 feet.

Joint rings must be strong enough to withstand stresses developed when the pipe is drawn together, plus sufficient impact resistance to withstand handling and placement.

Those are good reasons why the County Sanitation District No. 2 of Los Angeles County specifies ASTM A 48, class 40 iron for the rings. In addition to the required 40,000 psi, tensile strength, and 2600 lb transverse strength minimum, (on a 1.2 in. test bar), the bar must be capable of deflecting at least 0.20 in. and the iron must contain at least 0.40% Cr, 0.60% Cu and 0.35% Mo.

Examination of pipe lengths after six years' service showed them in excellent condition. Equally good performance is expected from the most recent installations which extend some 8000 feet into the Pacific Ocean, and are believed to be among the largest in the country.

. . . For more information on the contribution of moly to toughness and shock resistance of cast iron, circle number 4 on the coupon.

Climax Molybdenum Company, Dept. 2,
500 Fifth Avenue, New York 36, N. Y.
I'd like more information on:
1 2 3 4

Name_____

Address_____

City_____

Is Sheet Metal Scrap a Problem in Your Plant?

An Orderly Salvage Program... Built Around a G-H Hydraulic Baler... *Could be the Solution!*

A well integrated scrap metal salvaging operation, built around the right kind and size of scrap metal baling press, may be the key to neat, orderly disposal of your sheet metal scrap . . . profitably . . . with minimum disturbance to production.

Galland-Henning Hydraulic Balers for sheet metal scrap are fast, powerful, rugged and efficient. They convert stampings, clippings and other light sheet metal scrap into dense compact bales always in demand by mills, foundries, and smelters.

For competent counsel on your scrap metal salvaging and baling operations . . . based on years of successful experience . . . write

GALLAND-HENNING MFG. CO.
2725 South 31st St. • Milwaukee 46, Wis.

GALLAND-HENNING
SCRAP METAL BALING PRESSES

A 8727-2⅗

steel tools, wood models, patterns and plastic tooling.

Made by Renaud Plastics, Inc., Lansing, Mich., the surface plates don't warp, swedge, or corrode. Of course, they are non-magnetic and non-rusting. No special care or oiling is necessary to keep them in good working shape; minor repairs can be made using a plastic material. Moreover, the maker says the plates resist abrasion.

Though the plates reportedly have long life, the maker accepts old plates as "trade-ins" on new ones.

Quick Weld Job Cuts Production Delay

When a large crack developed in a 9000-lb aluminum platen, needed to produce aircraft parts, Sigma welding was rushed to the rescue. In just 9½ hours the crack was welded and the platen returned to service.

As a result of this fast action, Fairchild Engine & Airplane Corp., Hagerstown, Md., was able to salvage a critical platen. So the

This top view shows the weld made in just 9½ hours.

line was back in the aircraft building business again. Welding avoided a 6-week delay for a new platen to be cast and machined.

Complex Setup—The aluminum platen is approximately ½-ft thick,

5-ft wide and 17-ft long. As cast, it contains vacuum and pressure piping, heating units and a water-cooling system. Successful welding was especially important since these intricate components were exposed by the 2-in. deep crack. This extended about 23 in. on each side of the platen.

A Sigma SWM-2 welding outfit with a Heliarc HW-11 torch was used to repair the damaged platen. The welding operation was performed at a current setting of 200-amp DCRP, with Oxweld No. 23, 1/16-in. diam rod. Inert argon gas was employed to prevent atmospheric contamination of the weld area.

Chips Crack — After the crack was chipped to provide a good groove for welding, the platen was preheated to 325°F. All welding was done in a vertical position. This speeded repair, since alternate welds could be made on each side of the platen. To minimize stress buildup and undue porosity, each pass was peened before the next pass was made.

With the platen back in service, the Sigma welds successfully withstand stresses of 350°F heat and subsequent water quenching by the units inside the platen.

Likes Steel Floors

Steel floors for factories are getting more popular. So states Hercules Flooring Co. of New York City. The trend is growing so considerably that Detroit automotive presses now stamp steel factory floor plates during slack production periods. What impresses plant owners the most about steel locked into concrete is its safety and permanence.

Keeps Starch Fresh

Starch and starch-iodide solution life can be extended several weeks by adding about 1/10-gram of phenylmercuric acetate. So suggests S. P. Dodd of Chicago Apparatus Co. Starch solutions are used in determining the sulfur content of iron and steel by combustion and titration. Addition of phenylmercuric acetate retards bacteria growth, thus keeping a starch solution fresh and usable for several weeks.

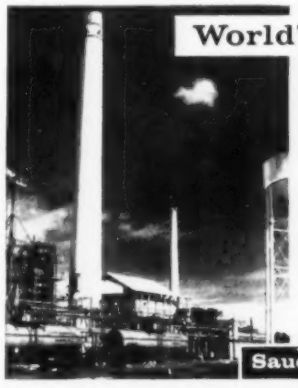
Automates Tube Output

More seamless steel tube with less labor. This describes a completely automated tube mill soon to begin operations. Operated by Mannesmann Tube Co., Ltd., Sault Ste. Marie, Ont., the plant is expected to turn out finished 4½ to 10¾-in. OD tubes at a rate of 225,000-tons a year.

Housed in a windowless steel building ¼-mile long and 200-ft wide, the installation stresses push-button operations. It will employ a total work force of 500, of which many are maintenance personnel

Testers Abuse Units

Test engineers sacrifice accuracy in shock measuring instruments by abusive practices. This is the opin-



World's Best Acid Proof Cement

for Chimneys

SAUEREISEN No. 31

This famous time-tested cement has been used for almost a quarter of a century in chimney construction, including the world's largest and most outstanding chimney installations. Sauereisen No. 31 is specifically formulated to provide economical, efficient construction, combining long life and minimum maintenance. *We invite your inquiries*

31-A

Sauereisen Cements Co., Pittsburgh 15, Pa.

ARMSTRONG

SET-UP *and* HOLD-DOWN TOOLS

ARMSTRONG Set-up and Hold-down Tools reduce setting-up time—keep men and machines producing. Designed for use on planers, drill presses, milling machines, etc., they hold work securely and rigidly, and thereby reduce spoilage and prevent costly accidents. Your local Armstrong Distributor carries ARMSTRONG Set-up and Hold-down Tools in stock in sizes for every operation. Stop haphazard setting-up methods. Provide each of your machines with a full complement of ARMSTRONG Set-up and Hold-down Tools.

Write for Circular

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

5209 W. Armstrong Ave.

Chicago 30, U.S.A.

for superior product appeal . . .

EBONOL OXIDE FINISHES

For STEEL, COPPER, BRASS and ZINC

- maximum wear resistance
- high adhesion
- jet blackness

With extensive laboratory facilities, a staff of trained technicians in the plant and in the field, and years of practical experience, Enthone Incorporated is exceptionally well equipped and qualified to study your metal blackening requirements (or any other difficult metal finishing problems) and recommend a practical solution. Write now, outlining your needs.

ENTHONE INCORPORATED

442 ELM STREET, NEW HAVEN 11, CONNECTICUT

Metal Finishing Processes • Electroplating Chemicals

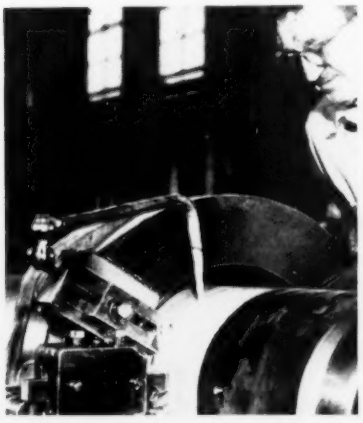
Service Representatives and Stock Points in Principal Cities of U.S.A. and Canada, Brazil, England, France, Sweden, and Germany

tion of George Hieber of Gulton Industries, Inc., Metuchen, N. J. Improper calibration, poor selection of associated equipment and over-extension of minimum frequency ranges result in improper measurements and abuse sensitive laboratory instruments, he says.

Uses Unusual Turning In "Skinning" Setup

In producing papermaking machinery, a machine shop uses an unusual combination turning method for "skinning" large steel pipe rolls.

Employed by Beloit Eastern Corp., Downingtown, Pa., the technique means first rough-turning extruded wrought steel pipe rolls.



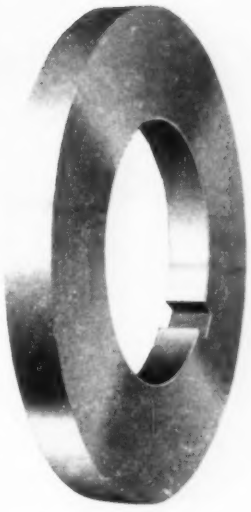
As the operator watches, the tool finishes this workpiece.

LeBlond 25 and 32-in. lathes turn, finish and polish these at one time.

Accuracy is important as the rolls must mate perfectly as they rotate up to 6000-rpm in high-speed papermaking machinery. Tolerance is 0.002-in. end to end. Rolls range from 8 to 24-in. diam. They are 23-ft long.

Roughs & Polishes—For roughing, a carbide tool does the job. A turret tool block mounted on the compound holds this tool. Bolted to the right carriage wings is a special solid ring-type follow rest.

COWLES
TRIMMING KNIVES



Assure more continuous production and more tonnage from each grind

Cowles knives stay on the job longer. They keep mills in continuous production with minimum downtime for knife changes. Manufactured from individually hammered forgings, and heat treated to assure maximum durability, they meet industry's most exacting requirements. Any diameter, face or bore. Widely used by all principal producers and processors. *Let us quote on your requirements!*

COWLES TOOL COMPANY
2060 WEST 110th STREET • CLEVELAND 2, OHIO

Specializing in the Manufacture of
ROTARY SLITTING KNIVES • SPACING COLLARS • ROTARY TRIMMING KNIVES • ROLL TURNING TOOLS • EDGING ROLLS • CUT-OFF KNIVES STANDARD AND SPECIALLY ENGINEERED TOOLS FOR ALL FERROUS AND NON-FERROUS PROCESSING, TRIMMING AND FORMING REQUIREMENTS.

ALL-HYDRAULIC !
SILENT HOIST KRANE KAR

FLUID DRIVE
POWER STEERING

HYDRAULIC
Boom Swinging
Boom Topping
Boom Telescoping
Load Hoisting

Originator and leader in its class for 30 years, KRANE KAR goes ALL-HYDRAULIC. Affords amazing ease of handling... touch control of all crane operations . . . with other engineering advances that simplify operator's work . . . eliminating gear shifting and clutch replacements . . . cutting maintenance to the bone and setting new standards of efficiency and productivity. Get the details. Sold and Serviced by Responsible, Well-Equipped Distributors

MODELS 1000 TO 25,000 LBS. CAP.

SILENT HOIST & CRANE CO.
Pioneer Mfrs. of Heavy Duty Materials-Handling Equipment
851 63rd Street, Brooklyn 20, N. Y.

which carries a tool block and a high-speed steel finishing tool. For polishing, a wooden emery paper holder, made like a clamp, mounts on the carriage wing against the turning pressure of the roll.

Tailstock rigidity is especially important; the tailstock spindle must be extended to make room for the follow rest mounted on the carriage wings when cutting starts. The firm uses an inbuilt anti-friction spindle in the tailstock.

Communications Setup Speeds Tool Orders

Thanks to a recently installed teletypewriter system, a company now places cutting tools on a customer's doorstep overnight. This eliminates the need for users to stock a large tool inventory.

Using the rapid communication setup, the DoAll Co. receives tool orders, processes them and sends them on their way within hours. The direct-wire hookup links 38 service-sales stores with a central warehouse at Des Planes, Ill. Here, the firm catalogs some 1800 cutting tool, gaging and metalworking supply items.

Cuts Downtime — About 80 to 90-pct of the company's orders are filled at the local level. However, when those that can't are needed by a customer in a hurry it can mean downtime for him. Waiting for an order costs money.

Improvements sometime breed problems, too. With faster communication came the need for improved shipping methods. So the firm now flies shipments from Chicago to distant east and west coast points. A hookup with a large bus company carries tool deliveries to closer points.

How It Works — Fast moving tools are kept in ample supply while slower moving items can be transferred quickly between stores or returned to warehouse stock. Customer inquiries receive home office attention in a matter of hours. Essentially, here's how the speedy setup works:

Orders come in over a battery of teletype receivers.

First, the order comes in from a sender-equipped store on one of a battery of teletype receivers. Then it's immediately transcribed and duplicated on a Bruning copying

POWER SPINNING of heads gives strength and rigidity to parts . . . keeps weight and bulk at a minimum.

ALL WELDED sheet steel construction provides the extra durability that means longer life . . . lower maintenance.

SPENCER Blowers
perform better because they're *made* better

Operation of any blower can only be as good as the workmanship that goes into making it.

That's why, step by step in the manufacture of SPENCER blowers—from the careful rolling of sheet steel to form casings . . . to the final painting with lead-base paint and then enamel—no effort is spared to produce the most reliable, sturdily constructed blowers on the market.

Spencer recognizes that *there are no short cuts to quality*. That's why SPENCER blowers have been preferred for forty years by leading furnace and other equipment manufacturers.

SPENCER Blowers are available in these capacities:
H.P.—1/3 to 1,000
CFM—Up to 20,000
Pressure—4 oz. to 10 lbs.

Request Catalog 126-A containing complete specifications.

The SPENCER TURBINE COMPANY
HARTFORD 6, CONNECTICUT

OTHER QUALITY SPENCER PRODUCTS

STATIONARY VACUUM SYSTEMS

PORTABLE VACUUM CLEANERS

PNEUMATIC CONVEYING SYSTEMS

machine. A copy goes back to the local store by mail.

Next, the order is processed through inventory control and turned immediately over to the ware-

Improving communications also means improving shipping.

house which is in the same building. Here, workers remove the item from stock.

Inspectors carefully check equipment on entering the warehouse from the factory. This prevents delays for inspection prior to shipment. Usually within an hour after the order comes in, the shipper "traffics" it to what he considers the most expedient carrier and it's on its way to the user.

Buick Uses Fast X-ray

A new X-ray machine that can analyze a given element in alloy steel in 10 sec, is presently in use at Buick's metallurgical laboratory. Verne Hense, Buick's chief metallurgist, says the new machine reduces by more than 4 hrs. the time needed to analyze some metallic elements.

Here is how the instrument works:

X-ray beams are directed at a sample to be tested. Each element in the sample reflects the beams at a different angle. Through the reflection angle it is possible to check the presence of any element because there is a different angle for every element. Tests can be run quickly without destroying the part being tested.

new . . . booming . . . stainless steels call for consistent analysis

MANGANESE	99.9% MINIMUM
CARBON	0.004% MAXIMUM
SULPHUR	0.024% MAXIMUM
IRON	0.001% MAXIMUM
HEAVY METALS	0.005% MAXIMUM
PHOSPHORUS	NOT DETECTABLE IN 25 GRAM SAMPLE
SILICON	SPECTROGRAPHIC TRACES ONLY
HYDROGEN	0.015% MAXIMUM

and ELECTROMANGANESE® has it

Stainless steel is on the move. Industry after industry is attracted by its recent strides in transportation equipment, appliances, architectural trim, household and store furnishings. And of all the stainless steels, the most stimulating seem to be the new 200 Series, characterized by high manganese, low nickel, content.

But—high manganese content also means consistent analysis in this critical alloying agent. The percentage of each impurity must be known and consistent in melt after melt. This calls for the purest commercial manganese available . . . Foote electrolytic manganese. Electromanganese, by trade name, consistently provides 99.9% manganese content in the analysis shown above. If you have a hydrogen problem, even this can be reduced to 7.5 ppm maximum in a *Hydrogen-Removed* grade. Nitrided manganese is available in Foote's high-purity Nitrelmang.® But just as important as consistent analysis is economy. And here Foote's alloying agents enable you to get the necessary manganese content in the most efficient way.

The 17 years' experience in manganese alloying available from Foote's Electromanganese Division is an important first step when you decide to really pursue the growing stainless steel market. A letter will bring a Foote engineer to your desk. Or, you can get further information by writing to our Technical Literature Department, Foote Mineral Company, 438 Eighteen West Chelten Building, Philadelphia 44, Pa.

Foote MINERAL COMPANY

SALES OFFICE: *Electromanganese Division, Knoxville, Tennessee*
RESEARCH LABORATORIES: *Berwyn, Pennsylvania*
PLANTS: *Cold River, N. H.; Exton, Pa.; Kings Mountain, N. C.; Knoxville, Tenn.; Sunbright, Va.*

ELECTROLYTIC MANGANESE METAL • WELDING GRADE FERRO ALLOYS • STEEL ADDITIVES • COMMERCIAL MINERALS AND OXIDES • ZIRCONIUM & TITANIUM IODIDE PROCESS • LITHIUM METAL, CHEMICALS AND MINERALS • STRONTIUM CHEMICALS

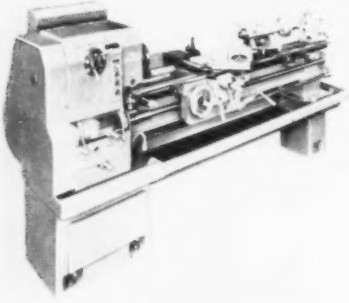
New Production Ideas

Equipment, Methods and Services

Fork Lift Trucks Operate In Narrow Aisles

Of the riding-type, a new line of electric tiering trucks operate in extremely narrow aisles. To pick up a palletized load from the floor or a storage rack, the operator of the truck simply hydraulically extends the forks into the pallet. Next, he lifts the load over the load wheels; then forks and load retract into the truck. When placing the load in a storage rack, he positions the truck facing the rack. The operator extends the forks until the load is in a proper position. He lowers the load into the rack and then retracts the forks from the pallet. Because of this feature, the truck picks up and deposits loads in aisles only as wide as the length of the truck and its forks. It needs no space for maneuvering. The truck has large 10-in. diam rubber-tired wheels. Its forks handle pallets of all widths. Models come in capacities to 3000 lb, according to their manufacturer. (Lewis - Shepard Products, Inc.)

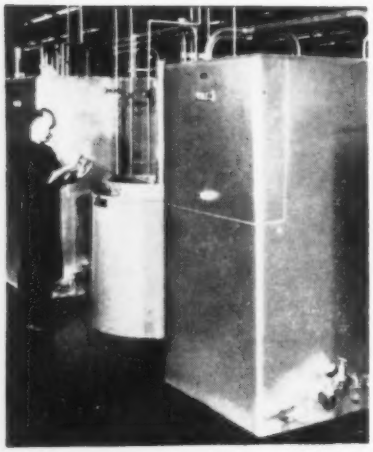
For more data circle No. 45 on postcard, p. 121



Standard-like Lathe Handles Tracer Operations

While keeping the flexibility of a standard lathe, this tracer lathe provides automatic turning of multiple diameter shafts and contoured workpieces. Pushing a single button instantly puts the tracer mechanism into operation. When manual usage is desired, none of the tracer mechanism need be removed. The tracer is locked out merely by retracting the tracer slide and pushing one control button. Engineered for convenience and operator safety, the entire tracer mechanism is mounted on the carriage with all controls, template, tracer finger and tools on the operating side of the lathe. It comes in 15 and 18-in. swing and center distances from 30 to 114-in. (Cincinnati Lathe & Tool Co.)

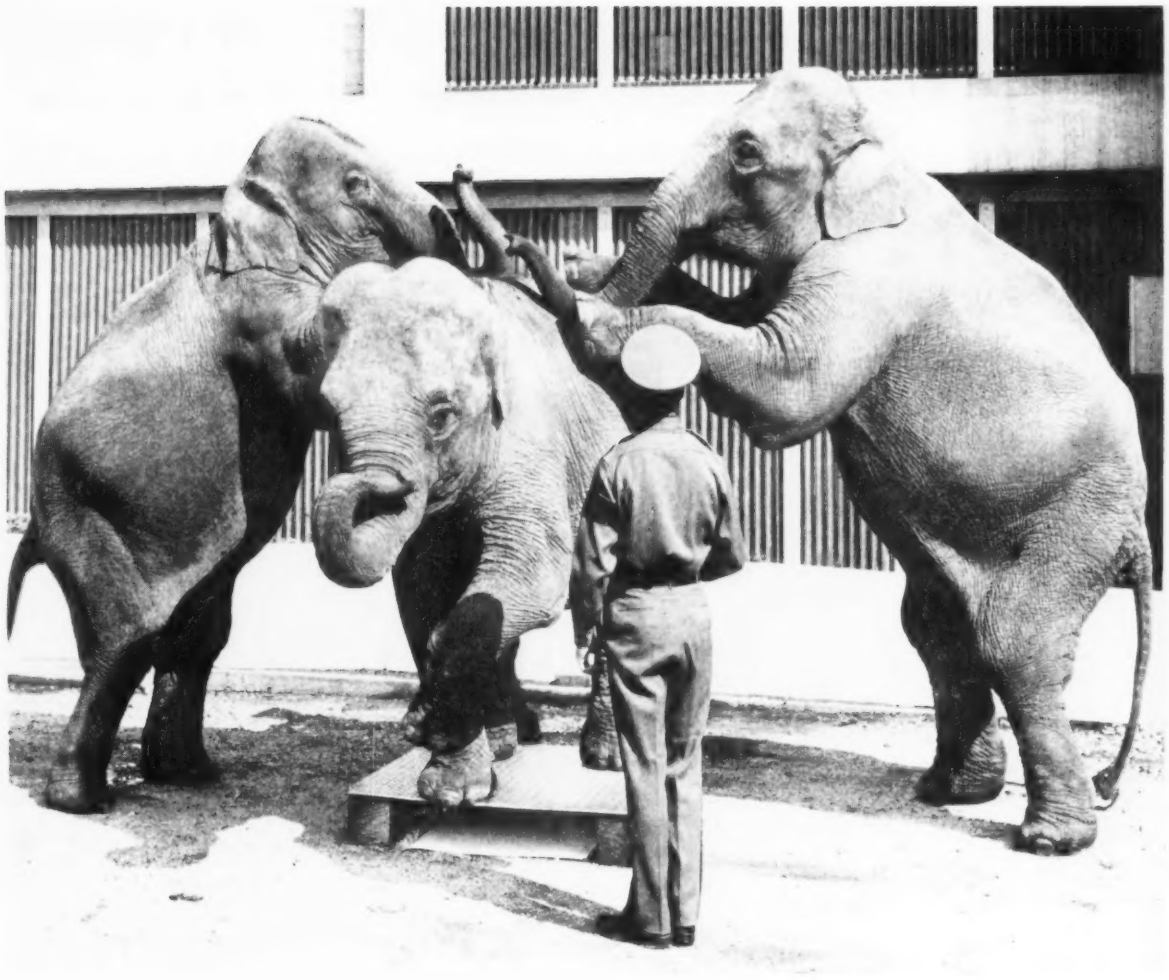
For more data circle No. 46 on postcard, p. 121



Furnaces Feature Streamlined Shell Design

Just installed in a large automaker's transmission plant are several new furnaces. Used in the tool room, the furnaces feature a modern design. They have easy-to-clean outer shells with smooth rounded corners. These streamlined shells reach all the way to the floor, preventing unsightly and dangerous clutter of tools sometimes found under open-type furnaces. The furnace doors, equipped with peepholes, open from inside the shell by an air cylinder. This is activated with a foot pedal on the floor outside the shell. Doors may be stopped in any position; a safety switch shuts off the furnace when it's open, too. Furnace control panels are cabinet type units, completely wired to terminal blocks for easy installation. Walls are built to withstand high temperatures and round-the-clock operation. The furnaces handle tool room needs, pilot jobs and production operation when necessary. (Waltz Furnace Co.)

For more data circle No. 47 on postcard, p. 121



2-TON BABIES PROVE 4-WAY'S STRUCTURAL STRENGTH

These frolicsome 2-ton circus babies demonstrate the ability of Inland 4-WAY Safety Plate to support tremendous weights. Because of 4-WAY's rugged strength, this 4' x 4' plate bears up under 4,000 pounds of pudgy pachyderm without a hint of strain.

The extreme structural strength of Inland 4-WAY Safety Plate is an important factor in plant safety. 4-WAY is not just another flooring surface material, but a steel plate that can be used as a structural member.

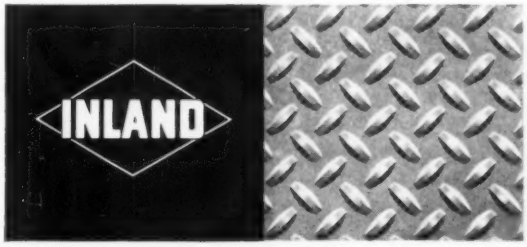
Strength, however, is only one of the advantages that 4-WAY offers. Its **slip-resistance, durability, attractive appearance, ease of application, fire resistance, ease of fabrication and cleanability** provide you with a combination of features unequalled by any other materials. Where can *you* use Inland 4-WAY Safety Plate? There are dozens of places in every plant where it can pay off in man hours saved . . . in providing safer, cleaner surfaces . . . in boosting general efficiency. For helpful suggestions and useful information, write to Dick Prendergast, Room 1262.

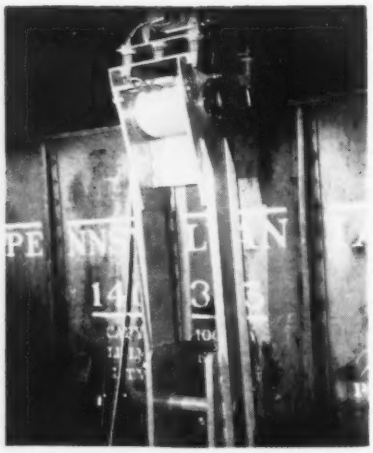
INLAND 4-WAY® SAFETY PLATE

INLAND STEEL COMPANY

38 South Dearborn Street • Chicago 3, Illinois

Sales Offices: Chicago • Milwaukee • St. Paul • Davenport
St. Louis • Kansas City • Indianapolis • Detroit • New York





Shaker Rapidly Unloads Materials From Hoppers

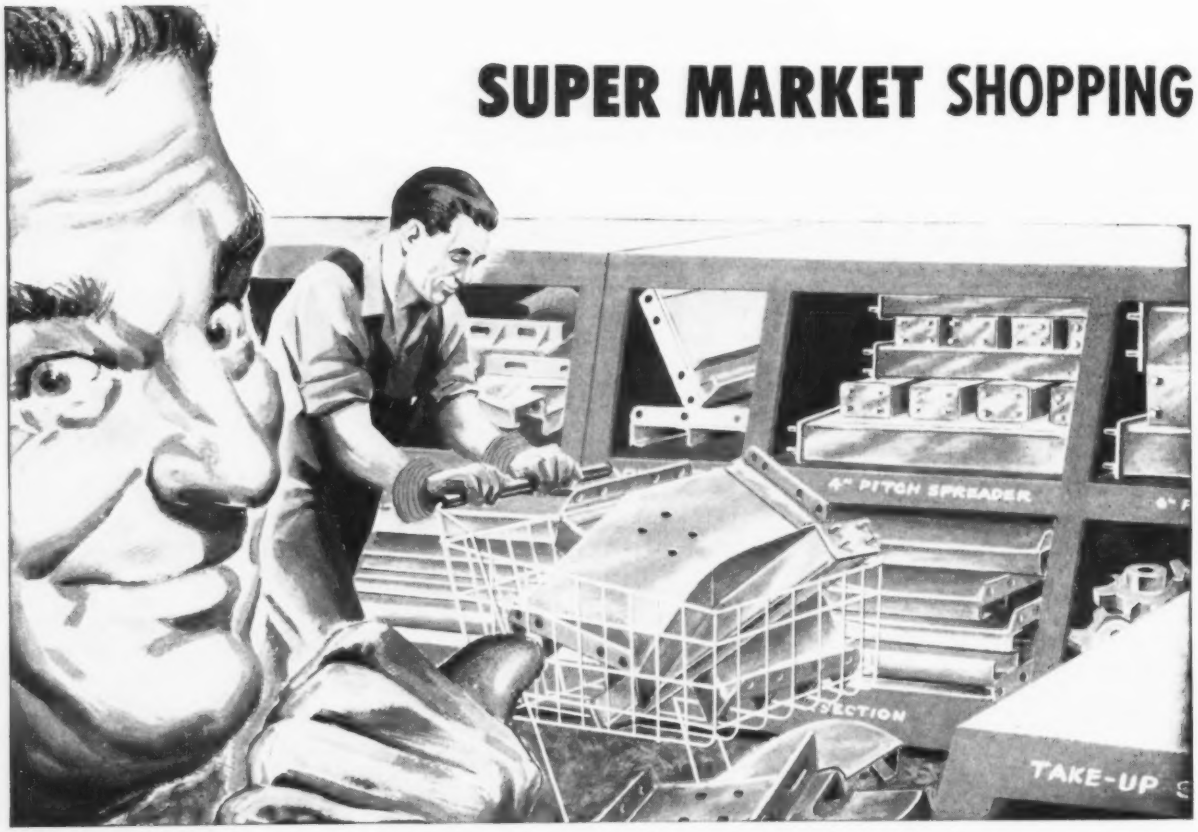
Speeding up the unloading of hopper-bottom, open top rail carriers is this car shaker. It combines impact features found in car shakers which operate on the top edges of the car only, with the vibration features found in car shakers which hang on the car side and are clamped to its underframe. The unit is particularly effective in loosening stubborn or frozen materials. Rotating an unbalanced shaft at 1800-rpm produces the actual shaking action. This shaft is fitted in two heavy-duty self aligning bearings carried in bearing housings which fit snugly in two heavy side plates. The side plates rest on the upper edge of the car when the shaker is in its operating position. The eccentric action of the rotating shaft is carried directly to the car without going through any welded connections. A 10-hp totally-enclosed motor mounted on a spring-supported base drives the shaft. (Eastern Constructors, Inc.)

For more data circle No. 48 on postcard, p. 121

Carbide Burrs Provide Mirror-ground Finish

This countersink-type solid carbide burr incorporates right-hand spiral flutes. Tests using it to countersink ¼ in. diam holes in hardened die steel Rockwell "C" 62-63 indicate that it gives very fine finishes at high speeds. Operating at 300-rpm, it provided positive shearing action and excellent chip ride-out resulting in a mirror ground finish. (Atrax Co.)

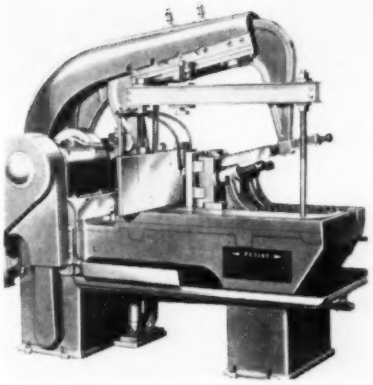
For more data circle No. 49 on postcard, p. 121



Power Hack Saw Cuts Off Large Size Stock

Large size stock cutting is the job of this power hack saw. The recently developed machine accommodates comparatively big pieces of work. Offering heavy-duty service, the metal cutting unit is hydraulically controlled. Its table top is just 31 in. from the floor. The hack saw incorporates a two-step poly V-belt drive. This gives the user of the machine a speed range of 35 to 115 strokes per minute. Its manufacturer recommends the equipment as ideal for cutting in large sized materials such items as titanium alloys, solids, cubing, pipe, structurals and the like. The extra heavy-duty unit is of rigid construction. A capacity of 20-in. x 20-in. is reported for the unit. (Racine Hydraulics & Machinery Inc.)

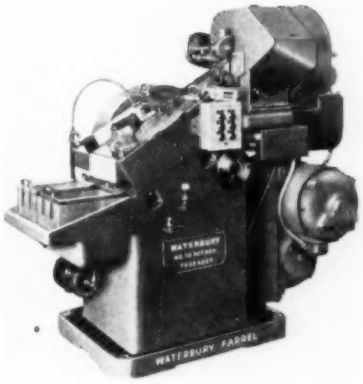
For more data circle No. 50 on postcard, p. 121



Rotary Die Threader Rolls Screw Blanks Fast

This rotary die threader is for thread rolling on either long or short runs. Employing a circular die and die segment, the machine threads all types of machine screws as well as other headed parts. The threader handles blanks from ¼ to 2-in. long and thread diameters from No. 6 to ¼-in. Production rates on blanks of conventional screw materials such as steel, brass and other alloys range from 200 to 600 per minute. Stainless steel blanks can be threaded at from 60 to 200 per minute. A safety device in the flywheel protects the dies if an oversize, bent or deformed blank comes through the feeding chute. This device consists of a shear pin that allows the flywheel to free-wheel when the pin is sheared. A separately-driven feed is used. (Waterbury Farrel Foundry & Machine Co.)

For more data circle No. 51 on postcard, p. 121



FOR CUSTOMIZED CONVEYORS WITH MAY-FRAN STANDARDIZATION

Developed to provide the ultimate of versatility, the May-Fran program of STANDARDIZATION permits users to create and construct their own conveyors to meet individual needs.

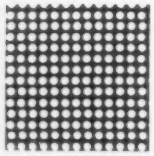
It literally provides a type of "super market" shopping for the straight, curved, inclined, take-up and discharge end sections required to meet the specifications of YOUR job requirements. Sections can be furnished to meet belt width as well as load bearing and volume capacities. Conveyors can be changed relative to length or width with only a minimum of downtime.

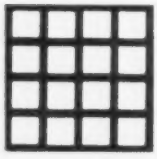
Write today . . . ask for a copy of MF Bulletin No. 200

MAY-FRAN ENGINEERING, INC.
1698 Clarkstone Rd. • Cleveland 12, Ohio

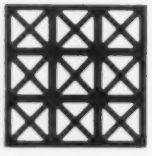
2200-MF

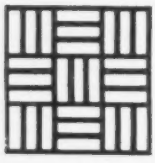
RUSH!
RUSH!
Perforated Steel Sheets from Stock
from H&K


Our large stock of perforated steel sheets consists of many sizes and gauges

In stock—for prompt shipment from our warehouses


Patterns are available for both industrial and decorative uses

Send for H & K stock list brochure for more details



Fill in and mail coupon to nearest office and warehouse

Illustrations shown in reduced size.

THE Harrington & King PERFORATING CO. INC.

Chicago Office and Warehouse: 5619 Fillmore Street, Chicago 44, Ill.
New York Office and Warehouse: 118 Liberty Street, New York 6, N.Y.

Please send me—
☐ GENERAL CATALOG NO. 62
☐ STOCK LIST of Perforated Steel Sheets

NAME_____
TITLE_____
COMPANY_____
STREET_____
CITY_____ ZONE_____ STATE_____

NEW EQUIPMENT

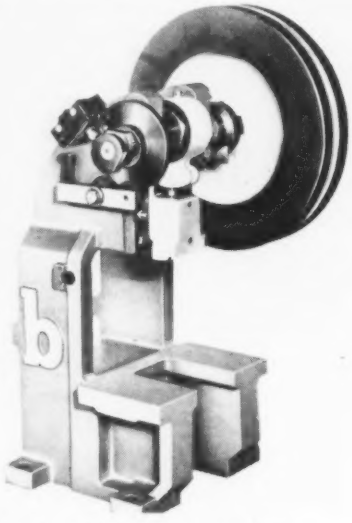
Cleaner, Coater

An automatic cleaning, phosphate coating and drying machine handles a variety of metal stampings. It incorporates both an overhead conveyor and a flat wire mesh belt conveyor to carry stamped parts through the automatically timed cycles. Thus, the machine meets varying requirements of different stampings as to vertical or horizontal handling for effective power spray coverage and drainage. The two conveyors operate simultaneously or independently. (Alvey-Ferguson Co.)

For more data circle No. 52 on postcard, p. 121

Fixed Bed Gap Press

This special 2-ton fixed bed gap press is especially designed for electronic component manufacturers. The press has a mechanical

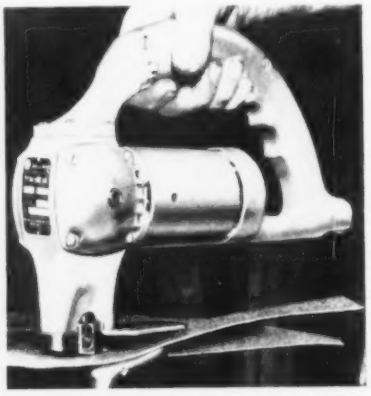


clutch which is actuated by an electric solenoid. On the left end of the spindle is a positive, single-revolution stop and two cam-operated microswitches. These prevent the electrical system from double tripping. The stopping device consists of a crankshaft-mounted disk notched on its periphery for a spring loaded pall. When the pall engages, the crankshaft stops 3/32 of an inch past top dead center. Ram location at the stop position is held to top dead center, with an accuracy of plus 1/64 in., minus zero. The maker drills special ears on the ram for bolting the ram to the die set. Tolerances throughout are refined to insure complete interchangeability of all tooling developed for the press. The unit operates at 280 to 290 strokes per minute. It has a 5⅛-in. die space (ram up) and a standard stroke of ¾-in. (Benchmaster Mfg. Co.)

For more data circle No. 53 on postcard, p. 121

Shear

With cutting speeds up to 30-fpm, this shear works most types of sheet metal and wire netting. Powered by a cool-running motor

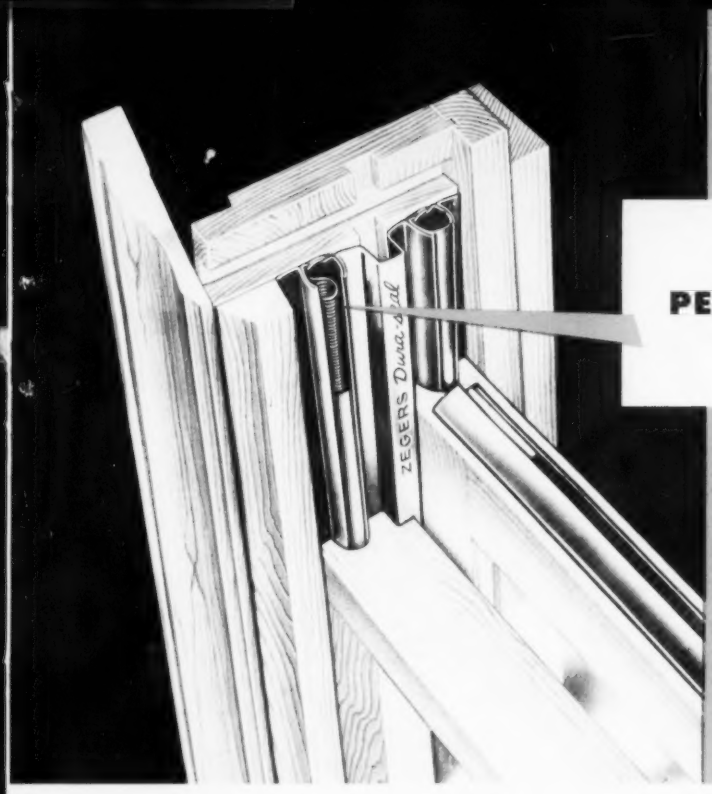


using a unique armature design for long heavy-impact service, the shear has a sturdy one-piece shoe, contoured to indicate the correct cutting angle. It cuts to a small radius. Blades adjust quickly to accommodate various material thicknesses. It's weight is just 6¾ lb. (Black & Decker Mfg. Co.)

For more data circle No. 54 on postcard, p. 121

Turning Rolls

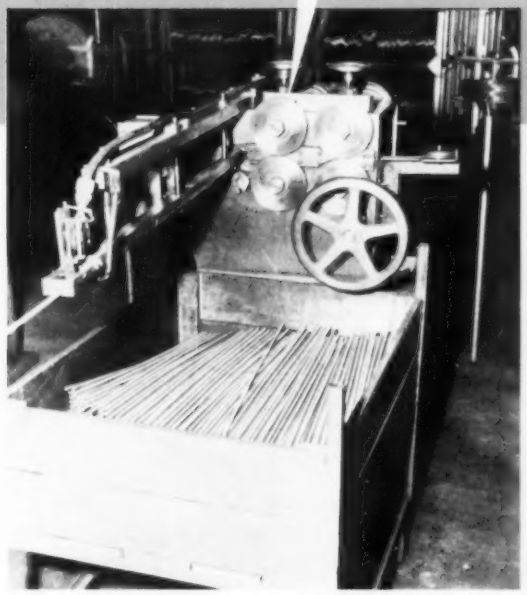
Portable pipe rotators consist of one variable speed powered rotator and one idler rotator. They rotate pipe and cylindrical shapes for flame cutting and welding operations. All wheels on both power and idler units are rubber tired. Capacity of one power and one idler unit is 1500 lb total load. More than one idler can be used where long joints of pipe are to be welded



GOOD PERFORMANCE HERE

KEYSTONE GALVANIZED MB SPRING WIRE STUDY

BEGINS HERE



Hour after hour, quality springs pop out of this spring machine. The uniformity of Keystone's drawn Galvanized MB Spring Wire assures long, trouble-free runs.

...that's why Zegers, Inc. specify KEYSTONE GALVANIZED SPRING WIRE

The above illustration shows a double hung window equipped with Dura-Seal combination metal weatherstrip and spring sash balance manufactured by Zegers, Inc., Chicago, Ill. Heart of the successful operation of this quality product is its spring balance. Not only must it have exactly the right tension for easy window operation, but must withstand countless flexings over a long period of time. Equally important, it must be easy and economical to produce.

Keystone Galvanized MB Spring Wire is preferred at Zegers for these reasons: Keystone has more consistent uniformity of composition, tensile and diameter—hence less trouble in their spring machines. That's because Keystone's unique method of cold drawing after galvanizing produces a dense, smooth coating free from flaking.

If you use wire to make your products, it will pay you to talk over your needs with your Keystone representative. For more information, send us the coupon below. Tell us how we can serve you.

Keystone Steel & Wire Company, Peoria 7, Illinois

KEYSTONE

WIRE FOR INDUSTRY

Keystone Steel & Wire Company
Peoria 7, Illinois

Brand New . . . COLD HEADING FACTS FOLDER . . . send coupon today! New folder discusses uses, applications, methods, technical facts, wire requirements.

Name_____ Title_____

Company_____

Street_____

City_____ State_____

BRIEFS for buyers of

Molten Salt Bath Cleaners
Caustic Soda
Muriatic Acid
Trichlorethylene

You save up to 75% with this new cleaner for castings

If you use an electrolytic salt bath to desand castings, you can make real economies with VIRGO® Electrolytic Salt, a new, yet well-established Hooker product.

You pay less for VIRGO Electrolytic Salt. Savings can be as much as 75% over comparable salts.

With this product, you remove sand, scale, graphite, and other surface impurities from iron and steel castings in 15-20 minutes. You get a chemically clean surface.

No acid dip. This VIRGO salt works the same as other electrolytic salts, in an 850-900° F. bath, at 6 volts or less. The process requires no acid, unless it is a prerequisite for subsequent operations.

The electrolytic action of the bath leaves casting surfaces resistant to rust; helps *keep* them clean while they await further processing.

To prove for yourself that VIRGO Electrolytic Salt can clean your castings—*for less money*—write us about submitting samples of your work for test cleaning. If you'd like technical data only, just check the coupon.

2 other specialized VIRGO products

Keep your process file up to date with the latest information on these other VIRGO metal cleaning compounds:

1. VIRGO Descaling Salt. For descaling titanium or stainless steel sheet, strip, wire, rods, tubes and other forms quickly, economically, without attacking the base metal.

2. VIRGO Molten Cleaner. Compounded especially for reclaiming parts loaded with rust and organic deposits.

For literature, check the coupon.

You can empty this caustic soda faster

Whether your operators scoop, pour, or shovel flake caustic soda, they'll find this new Hooker drum easier, faster, and safer to work with.

The opening on this new drum is a full 18 inches in diameter—an increase of 65% in opening area. When the drum is inverted, caustic can't pile up around the inside as it does with other standard drums.

You pay no extra for this drum. So if you've been paying a premium price for full-open-head drums of flake caustic, you can now get many of the same advantages, at standard prices. Just specify Hooker caustic soda in the 18-inch-opening drum.

Easy way to figure dilution of muriatic acid

A mark on the coupon will bring you a technical data sheet that shows at a glance how much Hooker muriatic acid you need to make up solutions of various strengths.

The same sheet gives some good advice on the safe handling of muriatic acid, and the specifications of Hooker muriatic.

Even a quick glance at the specs is likely to convince you that the purest muriatic you can buy anywhere is "*Hooker White*" grade. Entirely free of arsenic and free chlorine, this grade contains no more than .003% sulfates, .0001% iron.

You'll discover that our *Commercial Grade* muriatic is only slightly less pure: iron, .0005%; free chlorine, a trace; sulfates, .003%; organic matter, .001%; arsenic, none.

Both grades are available for your use in rubber-lined tank cars in 18°, 20°, and 22° Baumé strengths.

How to cut degreasing costs

You may have wondered if there isn't some way to extend the time between degreaser cleanouts, to get more use from the trichlorethylene you buy.

Well, there is. You see, all trichlorethylene is protected by a stabilizer against heat, light, air, moisture, acids, and active metals such as aluminum.

During normal use, the stabilizers in some brands of trichlorethylene tend to "wear out" or become depleted. That's why you may have to add new stabilizer. Eventually, if stabilizer is not replenished, the bath will "go sour."

But—when you use NIALK® TRICHLORethylene in your degreaser, you *never* have to add fresh stabilizer! You stand a better chance of going a long time between degreaser cleanouts. Why?

NIALK (and *only* NIALK) has **psp**—permanent STAYING power—in its neutral stabilizer. The stabilizer *can't* wear out during normal use. Even after repeated distillations, it's still active—protecting your parts against staining, keeping the bath from "going sour."

If you'd like to learn more about NIALK TRICHLORethylene and what it can do for your degreasing operations, just check the coupon.

Check items on which you'd like more information:

- ☐ VIRGO Electrolytic Salt
- ☐ VIRGO Descaling Salt
- ☐ VIRGO Molten Cleaner
- ☐ Caustic Soda
- ☐ Muriatic Acid
- ☐ NIALK TRICHLORethylene

Clip and mail to us with your name, title, and company address.

HOOKER CHEMICALS + PLASTICS

HOOKER ELECTROCHEMICAL COMPANY
306 UNION STREET, NIAGARA FALLS, N. Y.

NIAGARA FALLS • TACOMA • MONTAGUE, MICH. • NEW YORK • CHICAGO • LOS ANGELES

or where load capacity needs to be increased. Wheel centers on both power and idler units are fixed, requiring no adjustment on pipe sizes from 2 to 24 in. Also available is a unit having adjusting spacing to accommodate 8-ft diam work. (Reed Equipment Div., The Webb Corp.)

For more data circle No. 55 on postcard, p. 121

Hydraulic Jack

This 100-ton hydraulic jack will operate horizontally. Weighing 225 pounds, it works either vertically or horizontally because the oil is sealed in reservoirs. It stands just 12 in. and has a power raise of 6⅛ in. A tandem pump permits

rapid engagement of the load. The ram is brought into quick contact with the load by actuating both high speed and high lift plungers. The load can be lifted easily using only the high lift plunger. Dual release valves in the base of the jack operates from either side. (Duff-Norton Co.)

For more data circle No. 56 on postcard, p. 121

Big-capacity Hoist

With a 4000-lb capacity, this hoist is air powered. Fitted with either roller or link chain, its lifting and lowering speed varies from a creep to 10-fpm at full load and 90-psig air line pressure. Length of lift is 8-ft; the hoist operates with either a one-hand control bar or a remote pendent control. The axial-piston compressed air motor assures positive starts and stops, prevents motor burnouts during stalls.

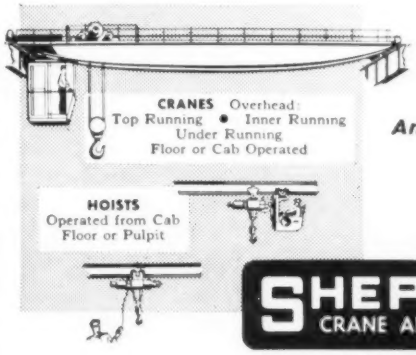
SHEPARD NILES

Large Industrial Cranes

1 to 450 TONS

FOR OVER 50 YEARS, Shepard Niles has been a distinguished name in cranes. A pioneer in the overhead crane industry, Shepard has never failed to modernize and progress through the years. Today its cranes serve thousands of satisfied users, plus an ever-increasing number of new customers.

Shepard offers a complete line of heavy industrial cranes . . . from 1 to 450 tons . . . for light, medium or heavy service. Available for constant or intermittent duty in slow, medium and high speeds; operated from cab or floor. Let a Shepard Niles representative help you select the crane that best fits your plant's load-handling requirements.



• Write for latest Bulletin . . . request a representative to call.

America's Most Complete Line of Cranes and Hoists Since 1903

SHEPARD NILES
CRANE AND HOIST CORPORATION

1484 Schuyler Ave., Montour Falls, N.Y.

What one form of power is cheaper today than in 1940?

Electricity. And if you operate electric industrial trucks, the cost is probably less now than when you bought them.

Isn't this a refreshing contrast to the rest of today's business-cost picture? And isn't this something to think about for the future? Other costs keep going up, up, up. But electricity has been coming down, down, down—for years.

The result is that electric industrial trucks are a better power bargain today than they've ever been. And power savings plus overhead savings actually total hundreds of dollars per truck every year. This has been proved in thousands of cases in all types of truck service.

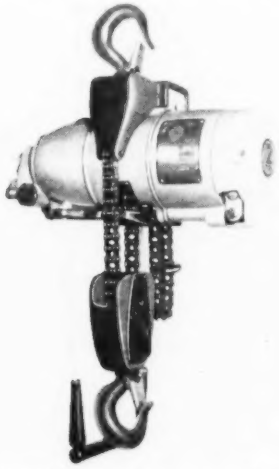
Here's how you save: You buy the power from your local electric company at low rates. Heavy duty storage batteries last for years without replacement. Cool-running electric motor-drive systems that seldom need maintenance—use no power at all when standing still. While first cost is higher, electric industrial trucks give you more than twice the useful life, according to national average figures. And it's a fact that of all the electric industrial trucks ever made in the U.S., about 90% are still on the job! That's real proof of service.

These are important cost considerations for up-to-date management men today. In addition, electric industrial trucks are easier to operate and make practically no noise—advantages especially appreciated by plant personnel. Have a talk with your nearby industrial truck dealer or salesman. He's listed in your classified telephone directory under "Trucks—industrial."

This message is presented as a service to industry by Exide Industrial Division, The Electric Storage Battery Company, Phila. 2, Pa.

THE ELECTRIC STORAGE BATTERY COMPANY **Exide**®

A centrifugally governed, fully mechanical brake prevents slippage. When the air supply fails or maximum lowering speed is exceeded, the brake design permits the operator to retain control of the hoist while lowering the load. The hoist

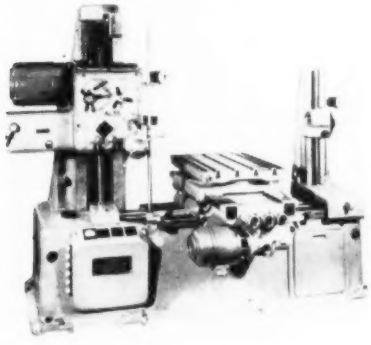


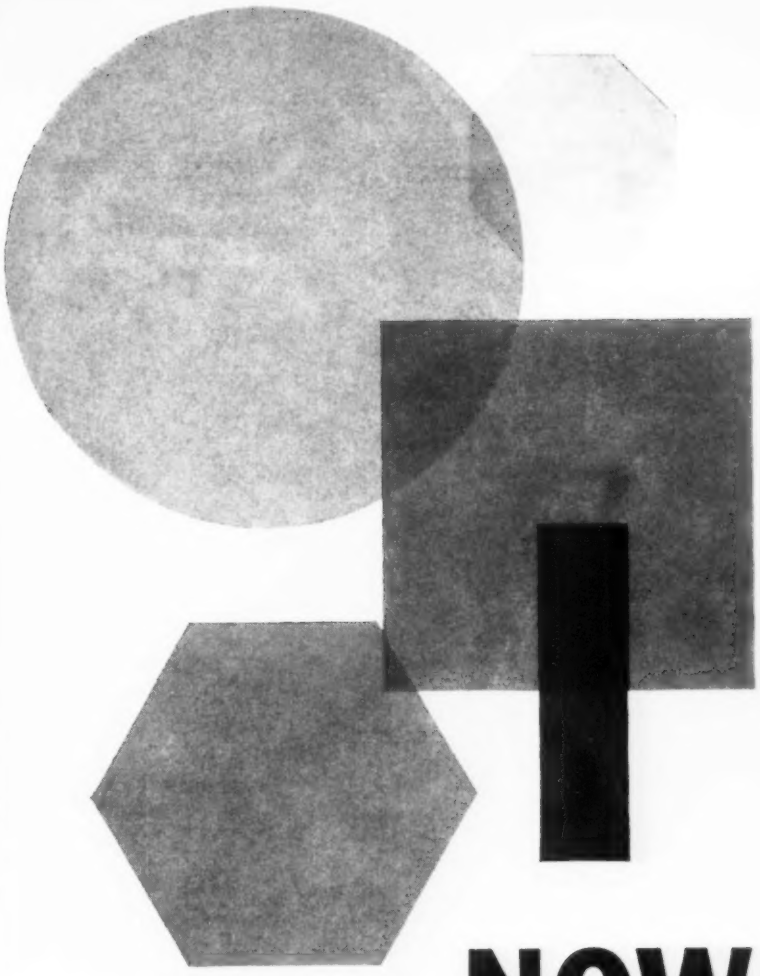
weighs 100 lb. It's equipped with swivel-mounted safety suspension and load hooks. Hook-to-hook dimension is 23½-in. Accessories for the hoist include trolleys for the hoist and air hose, a chain basket with a 20-ft capacity. (Gardner-Denver Co.)

For more data circle No. 57 on postcard, p. 121

Versatile Tool

For shops requiring very high precision as well as versatility, this 2-in. machine tool performs boring, drilling, milling and turning operations. It does these while providing the operator with direct readings





when you need it **NOW**

call Wheelock, Lovejoy!

For quick action — *regardless of the size of your order* — call Wheelock, Lovejoy for alloy steel bars, billets or forgings. Whatever size, shape or heat treatment you may need, you can get it *when you need it* by ordering directly from the W-L warehouse nearest you.

Expert metallurgists will help you select from our own HY-TEN steels or the standard AISI or SAE grades.

Write today to our Cambridge office for your *free* Wheelock, Lovejoy Data Sheets. They contain complete technical information on grades, applications, physical properties, tests, heat treating, etc.

Warehouse Service – Cambridge • Cleveland • Chicago Hillside, N. J. • Detroit • Buffalo • Cincinnati • *In Canada* – Sanderson-Newbould, Ltd., Montreal & Toronto.

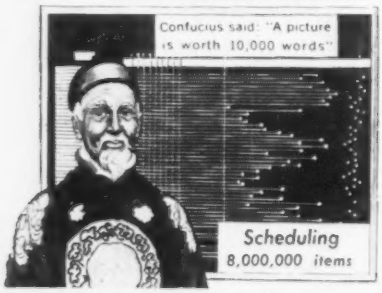
WHEELOCK, LOVEJOY & COMPANY, INC.

126 Sidney Street, Cambridge 39, Mass.

PRODUC-TROL Visual Control

not only schedules,

But **automatically checks with TIME, LINE and COLOR control**



- Original cost and upkeep low.
- Schedules and time checks operations.
- Historical record to back it up.
- Bad situations show automatically.
- Its simplicity has put it into world-wide use.
- Analyze 100 items in 10 seconds.

Effective Tools for Effective Management

WASSELL ORGANIZATION, INC.
Westport, Conn.
Phone CA 7-4111, or Write for Booklet

NEW EQUIPMENT

to 0.0001-in. These optical readings are made on attachments for travel of the table, spindle and outboard support. The unit features a built-in rotary table of rugged construction insuring rigidity and accuracy. Motor-driven, the 28 x 22-in. table is independent of the headstock with six power feeds and rapid traverse in all directions. Capable of rotating 360°, the table can be speedily indexed every 90° by means of built-in stops. (S & S Machinery Co.)

For more data circle No. 58 on postcard, p. 121

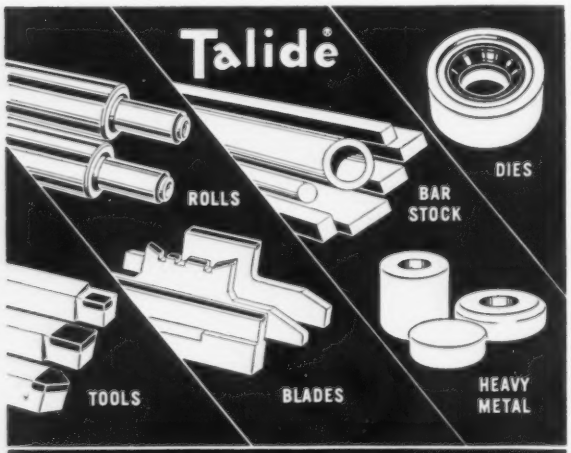
Welding, Cutting Outfit

For light-duty work, a welding outfit handles welding, brazing, heating, and cutting operations. It welds metals up to 3/16-in. thick, or up to 5/16 in. if larger tips are used. It cuts steel plate up to an inch thick. All equipment necessary to do welding or cutting is included in the outfit. Supplied are: two single-stage regulators, twin 3/16-in. gas hoses with connections, a lightweight welding torch with a mixer and two tips, and a cutting attachment with one tip. A wrench, sparklighter, and goggles round out the outfit. When assembled for cutting the combined weight of the torch and cutting attachment is only 19 oz; over-all length is 12½ in. (Air Reduction Sales Co.)

For more data circle No. 59 on postcard, p. 121

Self-Locking Nut

Designed to develop the full strength of 180,000-psi high-tensile bolts, a high-strength 12-point nut features weight savings of 20 to 40 pct over the maker's previous designs. The self-locking unit is a one-piece all-metal nut suitable for use in temperatures up to 550°F.



HARDEST MAN-MADE METAL!

● New, improved TALIDE METAL is uniform in quality—gives top performance on ALL cutting, drawing and wear-resistant applications. Write for Catalog 56-G. METAL CARBIDES CORP., Youngstown 12, Ohio.

METAL CARBIDES CORPORATION
TALIDE®
YOUNGSTOWN 12, OHIO

HOT PRESSED AND SINTERED CARBIDES • VACUUM METALS
HEAVY METAL • ALUMINUM OXIDE • HI-TEMP. ALLOYS
OVER 25 YEARS' EXPERIENCE IN TUNGSTEN CARBIDE METALLURGY

D.O.JAMES GEARS

Every Type··· FOR EVERY INDUSTRIAL NEED

148 Pages Gear Engineering Data—Available to Gear Engineers

GEAR ENGINEERING DATA

Please request your copy on company Letterhead—we'll mail it at once

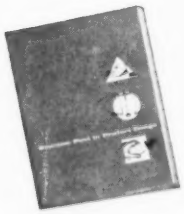
Our 70 years of Gear Experience will prove invaluable in your Gear needs

- **CONTINUOUS-TOOTH HERRINGBONE**—The gear with the backbone, made up to 60" in diameter
- **WORM GEARS**—Generated gear tooth, 1" to 60" in diameter
- **HELICAL GEARS**—From 1" to 72" in diameter
- **BEVEL GEARS**—(Straight Tooth) From 1" to 60" in diameter
- **SPIRAL BEVEL GEARS**—From 1" to 30" in diameter
- **SPUR GEARS**—From ¾" to 145" in diameter
- **INTERNAL GEARS**—Straight tooth up to 56" in diameter. Helical tooth up to 56" in diameter

D.O.JAMES GEAR MFG. CO.
1140 W. Monroe Street, Chicago — Branches in Key Industrial Areas

Rolling up the Miles

Rolling Down the Costs



Write for your copy of "STAINLESS STEEL IN PRODUCT DESIGN"

40 pages of useful engineering and fabricating data, including practical examples showing where, when and how stainless steel improves design, adds benefits, helps sales.

ADDRESS DEPT. A-90

Ask any user: stainless steel trailers *do* roll up extra miles. In fact, they can roll indefinitely because of their great strength and resistance to rust and wear . . . qualities in which *no other metal* matches stainless steel. Of course, that longer operational life means lower over-all expense.

But stainless helps roll down the costs (and UP the profits!) in other ways. It's so strong that thin-wall sections and structural members can be used, permitting greater payload capacity and offering additional savings in operating expenses. Painting isn't needed, and maintenance is cut to a whisper.

Such properties make stainless steel an ideal material for trailers, trains, planes, etc. They qualify it for myriad other applications, too. Chances are that *you* could use it when your product (or process equipment) requires superior strength, corrosion resistance, heat resistance, sanitary qualities, ease of fabrication, durability and attractiveness. ● We'd be pleased to discuss it with you—anytime you say or anywhere you'd like to meet. ***Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.***

WSW 6062 B

Make it BETTER-and LONGER LASTING-with

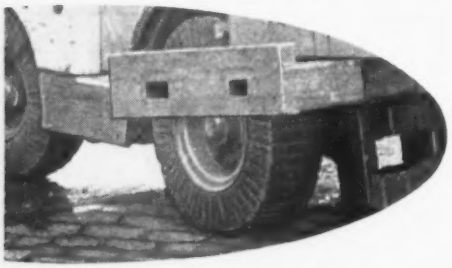
AL Stainless Steel

Warehouse stocks carried by all Ryerson Steel plants

AL ALLEGHENY LUDLUM

PROBLEM: HOW TO ELIMINATE "FLATS"— BUT STILL GET A "SOFT" RIDE

SOLUTION: NOTAT TIRES



After a year of use (over cobblestones and steel fragments) this set of Notat Tires still has plenty of wear left.

Granville Strachan, supervisor of Shipping, Receiving and Storage, Samuel M. Langston Co. (Camden, N. J.) corrugated container machinery, reports: "Because our fork trucks travel a great deal over bumpy cobblestone streets, we couldn't use solid tires. And because of steel turnings on the plant floors, we had a lot of "flat" trouble with pneumatic tires. A year has passed since we installed a set of NOTATS on the above Buda. That's longer than most sets of pneumatics ever lasted and we've still got plenty of wear left. We certainly eliminated flats and got the bounce-free riding quality we were looking for." Because NOTAT Tires have no air chamber, they can't go flat. And because they're LAMINATED (not solid) they "give" to prevent damage to loads and vehicles.

NO FLATS WITH NOTATS

NO TUBE AIR TROUBLE

NOTAT TIRE COMPANY
1504 EAST 34th STREET
CHATTANOOGA, TENNESSEE

PROMET

ENGINEERED BRONZE BEARINGS Wear Longer or YOUR MONEY BACK!

So certain that the formula developed specifically for your bearings, bushings and wearing parts will be absolutely correct, American Crucible guarantees longer, trouble-free service or money refunded.

The customer's opinion is final.

Write for free literature and service data sheets or send prints and conditions of operation for recommendations and quotations. No obligation.

THE American Crucible PRODUCTS CO.

13611 Oberlin Avenue Lorain, Ohio, U.S.A.

NEW EQUIPMENT

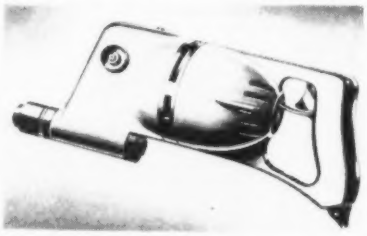
It combines a self-locking, high-strength nut element with a permanent-type molybdenum disulfide lubricant. The combination provides consistent torques over a wide

temperature range. This results directly in uniform preload in the bolted joint. Thus, it assures maximum fatigue resistance. The nuts come in sizes ¼ -28 through ½ -20. (The Kaynar Co.)

For more data circle No. 60 on postcard, p. 121

Electric Hammer

Weighing just 7½-lb is this heavy-duty electric hammer. The hamer is said to simplify drilling,



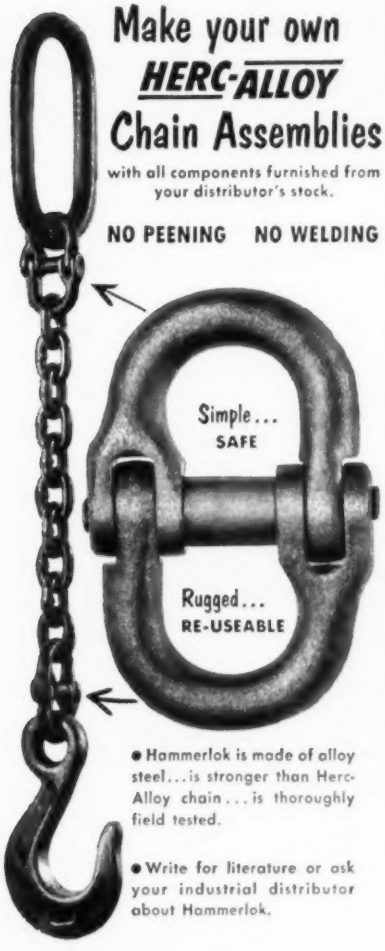
cutting and chiseling problems. For instance, a ⅞-in hole 1-in deep, can be drilled in concrete in just 30 seconds. Equipped with a quick-change chuck the hammer plugs in almost anywhere. It'll handle any of the maker's line of 40 different tools. (Modern Mfg. Co.)

For more data circle No. 61 on postcard, p. 121

Weld Roll Planisher

Featuring rotating heads, a weld roll planisher is available. The ro-

CM Hammerlok®
COUPLING LINK



Make your own
HERC-ALLOY
Chain Assemblies
with all components furnished from your distributor's stock.

NO PEENING NO WELDING

- Hammerlok is made of alloy steel...is stronger than Herc-Alloy chain...is thoroughly field tested.
- Write for literature or ask your industrial distributor about Hammerlok.

● *MADE BY* the makers of Herc-Alloy... the original alloy steel chain.

CM HOISTS AND CHAIN

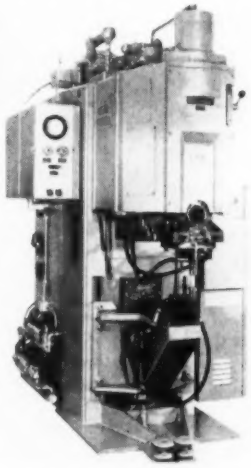
COLUMBUS McKINNON
CHAIN CORPORATION
TONAWANDA, NEW YORK
DISTRICT OFFICES: NEW YORK
CHICAGO • CLEVELAND
In Canada: McKinnon Columbus Chain Limited, St. Catharines, Ontario

tating heads turn 90° and lock in position for planishing circumferential welds as well as longitudinal welds on tubes, tanks, cones and other shapes. Vise-type locks hold the upper and lower heads in position. This 6½-ton planisher has a 72-in. throat. Pressures up to 10 tons and up to 96-in. throat depth are made too. The upper head is power driven by a geared head motor and chain drive. There are no size limitations for large diameter tubes. For small diameters, a traveling backup attachment is supplied. (Airline Welding & Engineering Co.)

For more data circle No. 62 on postcard, p. 121

Spot Welder

This special press-type spot welder welds heavy gages of aluminum alloy, heat-resisting alloys, and stainless and low carbon steels, according to military specifications.



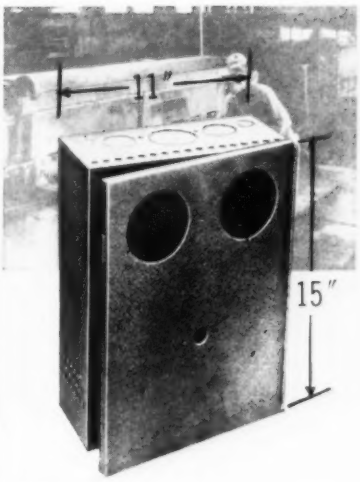
The unit is a special Size 4, 200-kva tri-phase welder. It's hydraulically operated with 18,000-lb maximum force at 30-in. throat. (The Taylor-Winfield Corp.)

For more data circle No. 63 on postcard, p. 121

Tape Resists Heat

Specially designed for critical high temperature applications is an improved masking tape. It's useful to 400°F. (Minnesota Mining & Mfg. Co.)

For more data circle No. 64 on postcard, p. 121



NEED ELECTRICAL BOXES...

or other sheet metal components for your products?

No need to worry about sources of supply for important sheet metal parts, or suffer through the problems of maintaining your own production facilities, when you can rely on Cincinnati Ventilating as a dependable source for all fabricated items. We are equipped to make almost any sheet metal part to your specifications, in any quantity; we can stamp, shear, break, roll, weld, machine, assemble and finish all types of metal—aluminum, brass, copper, monel, stainless and all other steels. We have the facilities and the personnel to produce consistently top quality work, at competitive prices.

if you use sheet metal component parts, write

the
CINCINNATI VENTILATING
Company
304 Madison Ave.
Covington, Ky.

What's the lowest cost way to produce steel parts like these?

You may be paying considerably more than you need to for parts like these if you aren't taking advantage of Ryerson flame-cutting service.

Size makes no difference—nor intricacy of shape. You can order one part or one thousand and get quick delivery of steel cut to close tolerance—with almost die-cut accuracy from piece to piece. And here's where the saving comes in:

1. **No dies or molds** are needed so you save this cost when you switch from cast or forged parts to flame-cut parts.
2. **Less machining** is usually required to finish a flame-cut part. Sometimes machining is eliminated altogether.
3. **Freight costs lower**—If you're now paying freight on steel you later scrap you may well be able to pay for flame cutting with the money you save by shipping lighter flame-cut parts. The blank for a 6" disc is 49% heavier than the disc itself. Storage and handling expenses are reduced, too.
4. **Less time in process**—You can often convert finished products into cash more quickly because parts can be produced faster by flame cutting.
5. **No loss on spoilage or rejects**—They're our problem—not yours.
6. **Design changes are simpler** and can be made more frequently without sacrificing manufacturing economy.

You draw on the nation's largest steel stocks at Ryerson—and unequalled flame-cutting facilities are ready to work for you. A blue print or sketch with clearly marked dimensions is all we need for prompt handling of your requirements. Call your nearby Ryerson plant for cost-cutting flame-cut steel today.

In stock: Carbon, alloy and stainless steel—bars, structurals, plates, sheets and strip, tubing, re-bars—industrial plastics, machinery & tools, etc.

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

The Iron Age Summary

Steel Heads for July Low Point

Mills look for steel output to bottom out in July. Ingot rate may dip below 80 pct.

Comeback is looked for in September, based largely on automotive revival.

▪ Steel output in July may dip to the lowest point in nearly three years. This excepts periods when the industry was crippled by strikes. Steel men have already written off July as the year's low point. And August may not be much better. But September is expected to reverse the trend.

The mills are being realistic about July. Their appraisal is based on the rate of incoming orders for that month. Also, they're aware that many steel-using companies will be shut down by vacations. The mills themselves plan to use the period for their own maintenance and repair work. One mill will lose three weeks' output of sheet in July while a new slabbing mill is installed.

How Low?—It looks as though July steel output will drop below 80 pct of capacity. This would be the first time this has happened since December of 1954, barring last year's July-August strike shutdown.

The expected pickup in September is based largely on the probable comeback in automotive ordering. By that time the mills figure Detroit will start ordering for new model production. Meanwhile, automotive steel inventories are being held to a minimum.

Other Factors—But automotive is not the entire basis for mill optimism for September and the fourth quarter. They're expecting new business also from home building, road construction, warehouses, farm machinery, and appliances. Part of this forward movement will be seasonal. Part will stem from the end of inventory cutting and reliance on the mills for current requirements.

Until demand for some steel products improves, the mills are running into more and more customers who are buying on the basis of quick delivery. This is forcing producers to build inventories of some products in order to compete. It's an indication that many users have cut their inventories to the bone.

Export Market—For many mills, export business is becoming more attractive. Automotive plants in Europe are interested in cold rolled sheet and are placing some orders with Midwestern mills. But the orders thus far have been modest.

If sheet demand picks up in late summer as the mills expect, rolling mill space for plates may be tighter. For each ton of sheets that are booked later in the year close to ¾ of a ton of light plate will be wiped off the wide strip mills. And each ton of light plate that goes off the sheet mills will have to find a home on the regular plate mills.

Steel Output, Operating Rates

Production (Net tons, 000 omitted)	This Week 2,304	Last Week 2,252	Month Ago 2,226	Year Ago 2,338
Ingot Index (1947-1949=100)	143.4	140.2	138.6	149.7
Operating Rates				
Chicago	87.0	87.0*	85.0	98.5
Pittsburgh	90.0	88.5*	92.0	100.0
Philadelphia	103.0	102.0	102.0	106.0
Valley	71.0	72.0*	78.0	99.0
West	103.0	101.0*	103.5	103.0
Buffalo	100.0	95.0	85.5	105.0
Cleveland	89.0	87.0*	86.5	102.5
Detroit	98.0	88.0	87.0	98.0
S. Ohio River	94.0	92.0	70.0	95.0
South	93.0	93.0	95.5	23.5
Upper Ohio R.	95.0	85.5*	84.0	106.0
St. Louis	89.5	90.0*	84.0	95.0
Northeast	66.5	66.5	63.0	84.0
Aggregate	90.0	88.0	87.0	97.0

*Revised

Prices At A Glance

(cents per lb unless otherwise noted)

	This Week	Week Ago	Month Ago	Year Ago
Composite price				
Finished Steel, base	5.670	5.670	5.670	5.179
Pig Iron (Gross ton)	$64.56	$64.56	$64.56	$60.29
Scrap, No. 1 hvy (Gross ton)	$50.83	$47.50	$44.17	$45.83
Nonferrous				
Aluminum ingot	27.10	27.10	27.10	25.90
Copper, electrolytic	32.00	32.00	32.00	46.00
Lead, St. Louis	14.80	14.80	15.80	15.80
Magnesium ingot	36.00	36.00	36.00	34.50
Nickel, electrolytic	74.00	74.00	74.00	64.50
Tin, Straits, N. Y.	98.375	98.375	99.25	93.625
Zinc, E. St. Louis	11.50	11.50	13.50	18.50

*Revised

Speedy Delivery Wins Sales

Victory in current battle for sheet, bar and wire orders often goes to mill giving the fastest service.

Producers adjust operating pattern to fit consumer needs.

▪ Ability to give customers rapid delivery is the steel salesman's best talking point in the current chase after sheet, strip, bar and wire product orders.

Mills find that with the buyers in the driver's seat they're often pitted against each other to come up with the fastest service. And the difference of a day or two in delivery promises may mean gaining or losing a sale.

Flexibility Helps—With spot buying accounting for a larger portion of sales, the producers can't count on getting standard lead time from customers. And they are putting the emphasis on mill operating flexibility to meet consumer needs. Often smaller mills, not as likely to encounter scheduling or rolling delays, are winning the order race.

However, some larger producers, to combat this, are carrying heavier finished product inventories to speed shipments. Many are building slab stocks in another effort to cut down the time needed for processing orders.

While mill efficiency may pay off at the sales end, customers aren't making scheduling easy. Besides spot ordering, they're still advancing or moving back orders, and being generally non-committal about summer steel requirements. "We need a crystal ball or ouija board to block out July schedules," says one Eastern producer.

Plate and Shapes—Many producers of heavy plate and structurals are already lining up enough business to insure capacity operations through the second half of the year. And, despite some evidence to the contrary, light plate is still selling well.

A large plate user at **Pittsburgh** has given up on the idea of getting by without paying a premium for steel in the rest of '57. A producer there is booked to capacity on light plate for the next two months.

Light plate rolled on continuous mills is taking up much of the slack caused by weak demand at **Cleveland.** It's going to railroad carbuilders, welded pipe makers, and shipbuilders.

Producers in the **Philadelphia** area note heavy export interest in plate with foreign users willing to settle for long-term delivery promises. Usually, however, domestic demand prevents the mills from taking much export business.

Bar—The current market is causing mills to operate in just about the reverse of their normal style. Usually reinforcing bar and other small size products are the most active market-wise. Now, however, there's heavy demand for tube rounds, railroad axles, and other large diameter products.

Demand for reinforcing bar at **Cleveland** is keeping rolling schedules at capacity with monthly bookings filled soon after they are opened.

However, a **Pittsburgh** mill plans to close all but one of its facilities for two weeks in July. The lag in bar ordering there is expected to continue through the third quarter.

Only recent activity in the **Detroit** market was an order for forging bar from an automaker.

Wire Products—Delivery is a big factor in getting orders. Large mills, to offset flexibility of smaller producers, are often carrying heavy inventories to speed shipments.

Almost all standard wire products are available from **Cleveland, Chicago, Pittsburgh, Philadelphia** and **Boston** producers in about 2-3 weeks time or less. Welded wire fabric is experiencing a seasonal spurt. New facilities in **Cleveland** are working on 7-8 week delivery of the product. At **Pittsburgh,** it's 15 weeks and at **Chicago,** 7-8 weeks.

Pipe and Tubing—Despite some juggling of orders, producers of oil country seamless at **Pittsburgh** expect capacity bookings for the second quarter. Mechanical tubing and buttweld pipe are the products continuing weak. Welded linepipe over 2 in. is almost impossible to get.

Sheet and Strip—As the number of spot orders by customers filling inventory gaps mounts, mills are giving more attention to the problem of rapid delivery.

Cleveland mills report some European automotive plants are placing orders for cold-rolled sheet.

Spot ordering is a big factor at **Pittsburgh** with over 30 pct of mill tonnage coming in after normal lead time.

PURCHASING AGENT'S CHECKLIST

Majority of purchasing agents at annual meeting feel business outlook is good. **P. 51**

High strength structurals are getting big sales boost from engineers and designers. **P. 54**

Mine equipment sales experiencing a revival. **P. 56**

COMPARISON OF PRICES

(Effective June 4, 1957)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in **Heavy Type**: declines appear in *Italics*.

	June 4 1957	May 27 1957	May 7 1957	June 5 1956
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	4.675¢	4.675¢	4.675¢	4.325¢
Cold-rolled sheets	5.75	5.75	5.75	5.325
Galvanized sheets (10 ga.)	6.30	6.30	6.30	5.85
Hot-rolled strip	4.675	4.675	4.675	4.325
Cold-rolled strip	6.870	6.870	6.870	6.28
Plate	4.87	4.87	4.87	4.52
Plates, wrought iron	10.40	10.40	10.40	10.40
Stainl's C-R strip (No. 302)	50.00	50.00	50.00	44.50
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	$10.30	$10.30	$10.30	$9.85
Tin plates, electro (0.50 lb.)	9.00	9.00	9.00	8.55
Special coated mfg. ternes	9.55	9.55	9.55	9.10
Bars and Shapes: (per pound)				
Merchant bars	5.075¢	5.075¢	5.075¢	4.65¢
Cold finished bars	6.85	6.85	6.85	5.90
Alloy bars	6.125	6.125	6.125	5.65
Structural shapes	5.00	5.00	5.00	4.60
Stainless bars (No. 302)	43.25	43.25	43.25	38.25
Wrought iron bars	11.50	11.50	11.50	11.50
Wire: (per pound)				
Bright wire	7.20¢	7.20¢	7.20¢	6.60¢
Rails: (per 100 lb.)				
Heavy rails	$5.275	$5.275	$5.275	$4.725
Light rails	6.25	6.25	6.25	5.65
Semifinished Steel: (per net ton)				
Rerolling billets	$74.00	$74.00	$74.00	$68.50
Slabs, rerolling	74.00	74.00	74.00	68.50
Forging billets	91.50	91.50	91.50	84.50
Alloy blooms, billets, slabs	107.00	107.00	107.00	96.00
Wire Rod and Skelp: (per pound)				
Wire rods	5.80¢	5.80¢	5.80¢	5.025¢
Skelp	4.625	4.625	4.625	4.225
Finished Steel Composite: (per pound)				
Base price	5.670¢	5.670¢	5.670¢	5.179¢

	June 4 1957	May 27 1957	May 7 1957	June 5 1956
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$68.88	$68.88	$68.88	$65.26
Foundry, Valley	65.00	65.00	65.00	60.50
Foundry, Southern Cin'ti	67.17	67.17	67.17	62.93
Foundry Birmingham	59.00	59.00	59.00	55.00
Foundry, Chicago	65.00	65.00	65.00	60.50
Basic, del'd Philadelphia	68.38	68.38	68.38	64.48
Basic, Valley furnace	64.50	64.50	64.50	60.00
Malleable, Chicago	65.00	65.00	65.00	60.50
Malleable, Valley	65.00	65.00	65.00	60.50
Ferromanganese, cents per lb‡ 74 to 76 pct Mn base.	12.75¢	12.75¢	12.75¢	9.50¢
Pig Iron Composite: (per gross ton)				
Pig iron	$64.56	$64.56	$64.56	$60.29
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	**$50.50**	$47.50	$44.50	$44.50
No. 1 steel, Phila. area	**55.50**	51.50	48.50	47.50
No. 1 steel, Chicago	**46.50**	43.50	39.50	45.50
No. 1 bundles, Detroit	**43.50**	39.00	39.00	37.50
Low phos., Youngstown	**54.50**	48.50	46.50	51.00
No. 1 mach'y cast, Pittsburgh	56.50	56.50	52.50	56.50
No. 1 mach'y cast, Philadel'a	56.50	56.50	55.50	54.50
No. 1 mach'y cast, Chicago	**49.50**	47.50	45.50	49.50
Steel Scrap Composite: (per gross ton)				
No. 1 heavy melting scrap	**$50.83**	$47.50	$44.17	$45.83
Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	$15.38	$15.38	$15.38	$14.50
Foundry coke, prompt	$17.50-$19	$17.50-$19	$17.50-$19	$17.50
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	32.00	32.00	32.00	46.00
Copper, Lake, Conn.	32.00	32.00	32.00	46.00
Tin, Straits, New York	98.375†	98.375	98.50	93.625
Zinc, East St. Louis	11.50	11.50	12.00	18.50
Lead, St. Louis	14.80	14.80	15.80	15.80
Aluminum, virgin ingot	27.10	27.10	27.10	25.90
Nickel, electrolytic	74.00	74.00	74.00	64.50
Magnesium, ingot	36.00	36.00	36.00	34.50
Antimony, Laredo, Tex.	33.00	33.00	33.00	33.00

† Tentative, ‡ Average, * Revised

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Averages of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

←To identify producers, see Key on P. 161→

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdsboro, Pa. *B6*	66.50	67.00	67.50	68.00	.....
Birmingham *R3*	58.50	59.00*	.....	.....	.....
Birmingham *W9*	58.50	59.00*	63.00	.....	.....
Birmingham *U4*	58.50	59.00*	63.00	.....	.....
Buffalo *R3*	64.50	65.00	65.50	66.00	.....
Buffalo *H1*	64.50	65.00	65.50	66.00	.....
Buffalo *W6*	64.50	65.00	65.50	66.00	.....
Chester *P2*	66.50	67.00	67.50	.....	.....
Chicago *I4*	64.50	65.00	65.00	65.50	.....
Cleveland *A5*	64.50	65.00	65.00	65.50	69.50†
Cleveland *R3*	64.50	65.00	65.00	65.50	.....
Duluth *I4*	64.50	65.00	65.00	65.50	69.50†
Erie *I4*	64.50	65.00	65.00	65.50	69.50†
Everett *M6*	66.00	66.50	67.00	.....	.....
Fontana *K1*	72.50	73.00	.....	.....	.....
Geneva, Utah *C7*	64.50	65.00	.....	.....	.....
Granite City *G2*	66.40	66.90	67.40	.....	.....
Hubbard *Y1*	.....	.....	65.00	.....	.....
Ironton, Utah *C7*	64.50	65.00	.....	.....	.....
Midland *C11*	64.50	.....	.....	.....	.....
Minnequa *C6*	66.50	67.00	67.50	68.00	.....
Monessen *P6*	64.50	.....	.....	.....	.....
Neville Is. *P4*	64.50	65.00	65.00	65.50	69.50†
N. Tonawanda *T1*	.....	65.00	65.50	66.00	.....
Sharpsville *S8*	64.50	65.00	65.00	65.50	.....
So. Chicago *R3*	64.50	65.00	65.00	.....	.....
Swedeland *A2*	66.50	67.00	67.50	68.00	.....
Toledo *I4*	64.50	65.00	65.00	65.50	.....
Troy, N. Y. *R3*	66.50	67.00	67.50	68.00	72.50
Youngstown *Y1*	.....	.....	65.00	65.50	.....

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.25 pct manganese or portion thereof over 1 pct, $2 per ton for 0.5 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. * Add $1.00 for 0.31-0.69 pct phos. † Intermediate low phos. ‡ Add $1.00 for 0.31 to 0.50 pct phos.

Silvery Iron: Buffalo (6 pct), *H1*, $78.50; Jackson, *J1, I4* (Globe Div.), $77.25; Niagara Falls (15.01-15.50), $101.00; Keokuk (14.01-14.50), $103.50; (15.51-16.00), $106.50. Add $1.00 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 18 pct. Add $1.25 for each 0.50 pct manganese over 1.00 pct. Bessemer silvery pig iron (under .10 pct phos.): $64.00. Add $1.00 premium for all grades silvery 6 pct to 14 pct

STAINLESS STEEL

Base price cents per lb f.o.b. mill

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	21.25	22.75	22.25	24.25	—	26.00	38.25	31.00	35.50	—	16.00	27.75	16.25
Slabs, billets	26.00	29.00	27.00	30.25	30.75	32.00	47.50	38.50	44.75	—	20.75	—	21.00
Billets, forging	—	35.00	35.75	36.50	39.50	39.00	59.75	45.25	53.50	30.75	27.25	27.75	27.75
Bars, struct.	40.50	41.25	42.50	43.25	46.25	46.00	70.25	53.25	62.25	36.25	32.50	33.00	33.00
Plates	42.50	43.25	44.50	45.50	48.00	48.75	73.75	57.50	67.00	38.75	33.75	35.50	34.50
Sheets	46.75	47.25	49.25	50.00	—	53.25	78.25	63.00	76.25	46.50	38.75	46.50	39.25
Strip, hot-rolled	34.50	37.50	35.75	39.00	—	42.50	66.50	51.50	61.00	—	29.75	—	30.75
Strip, cold-rolled	43.25	47.25	45.75	50.00	—	53.25	78.25	63.00	76.25	46.50	38.75	46.50	39.25
Wire CF; Rod HR	—	39.25	40.25-40.50	41.00-41.25	44.00	43.75	66.75-67.00	50.50-51.00	59.25-59.50	34.50	31.00	31.50	31.50

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., *C11*; Brackenridge, Pa., *A3*; Butler, Pa., *A7*; Vandergrift, Pa., *U1*; Washington, Pa., *W2, J2*; Baltimore, *E1*; Middletown, O., *A7*; Massillon, O., *R3*; Gary, *U1*; Bridgeville, Pa., *U2*; New Castle, Ind., *I2*.

Strip: Midland, Pa., *C11*; Waukegan, Cleveland, *A5*; Carnegie, Pa., *S9*; McKeesport, Pa., *F1*; Reading, Pa., *C2*; Washington, Pa., *W2*; W. Leechburg, Pa., *A3*; Bridgeville, Pa., *U2*; Detroit, *M2*; Canton-Massillon, O., *R3*; Harrison, N. J., *D3*; Youngstown, *C5*; Sharon, Pa., *S1*; Butler, Pa., *A7*; Wallingford, Conn., *U3* (plus further conversion extras); *W1*; New Bedford, Mass. (.25¢ per lb higher), *R6*; Gary, *U1* (.25¢ per lb higher).

Bar: Baltimore, *A7*; S. Duquesne, Pa., *U1*; Munhall, Pa., *U1*; Reading, Pa., *C2*; Titusville, Pa., *U2*; Washington, Pa., *J2*; McKeesport, Pa., *U1, F1*; Bridgeville, Pa., *U2*; Dunkirk, N. Y., *A3*; Massillon, O., *R3*; S. Chicago, *U1*; Syracuse, N. Y., *C11*; Watervliet, N. Y., *A3*; Waukegan, *A5*; Canton, O., *T5, R3*; Ft. Wayne, *I4*; Philadelphia, *D5*; Detroit, *R5*; Gary, *U1*.

Wire: Waukegan, *A5*; Massillon, O., *R3*; McKeesport, Pa., *F1*; Ft. Wayne, *J4*; Harrison, N. J., *D3*; Baltimore, *A7*; Dunkirk, *A3*; Monessen, *P1*; Syracuse, *C11*; Bridgeville, *U2*.

Structurals: Baltimore, *A7*; Massillon, O., *R3*; Chicago, Ill., *J4*; Watervliet, N. Y., *A3*; Syracuse, *C11*; S. Chicago, *U1*.

Plates: Brackenridge, Pa., *A3*; Chicago, *U1*; Munhall, Pa., *U1*; Midland, Pa., *C11*; New Castle, Ind., *I2*; Middletown, *A7*; Washington, Pa., *J2*; Cleveland, Massillon, *R3*; Coatesville, Pa., *C15*; Philadelphia, *D5*; Vandergrift, Pa., *U1*; Gary, *U1*.

Forgings billets: Midland, Pa., *C11*; Baltimore, *A7*; Washington, Pa., *J2*; McKeesport, *F1*; Massillon, Canton, O., *R3*; Watervliet, *A3*; Pittsburgh, Chicago, *U1*; Syracuse, *C11*; Detroit, *R5*; Munhall, Pa., S. Chicago, *U1*.

Industrial Lists Lead Upsurge

Sharp competition for big industrial lists booms prices.

But trade wonders where all the scrap is going. Shortage of dealer scrap continues.

▪ A combination of mill and broker buying sent scrap prices sharply upward in most markets.

Prices of No. 1 grades gained from $3 to $5.50 in major markets. While mill purchasing accounted for sharp gains in some markets, sharp bidding for industrial lists set the pace.

Automotive and railroad lists were expected to bring somewhat higher prices, but competition for the choice grades was far over expectations.

Some of the trade reported much of the bidding was speculative. Much of the scrap purchased could not be traced directly to a mill destination.

Another factor in booming the market is a scarcity of scrap at dealer sources. The higher mill prices appeared to be necessary to bring out needed tonnage.

As a result of the sharp upward trend, THE IRON AGE Composite Price jumped to $50.83, the first time it passed the $50 mark since early March.

Pittsburgh — Prices of most grades are up sharply as most consumers are reported in the mood to buy. A local mill bought No. 2 heavy melting at $45 and $43, depending on freight haul. No. 2 bundles at $43 and $41. A fringe mill paid $51 for No. 1 heavy melting, $46 for No. 2. Prices of secondary grades continue to rise above figures paid by both mills. Industrial bundles are up sharply. Railroad grades are up on early lists.

Chicago—Prices jumped upward in spite of major consumers attempting to fight a rear guard action to hold prices in check. Despite advances, scrap continued to move out of the area. Strong movement of scrap between brokers continued, at stiff price levels. But despite the price boom, mills are well booked through June, with operating levels expected to dip in July and August.

Philadelphia—Unexpected entry of several area mills into the market for steelmaking and blast furnace grades sent prices upward as much as $4 a ton. The increase was expected to bring good scrap out in abundance. Electric furnace bundles and railroad specialties were up $2. Low phos grades were bringing $2.50 higher. Only cast iron remained unchanged.

New York—Prices continue to rise for steelmaking and blast furnace grades. No. 1 heavy melting is now selling at $49 to $50, with export shipments delivered to dock at $53. There is talk of even higher prices. Shortage of material plus a groundswell of domestic orders have combined with export orders to boost prices.

Detroit — The market bounced back here. Bidding on June auto lists was up as much as $10 over a month ago, with some factory bundles going for $51. It is believed that most of the industrial tonnage is not for local consumption. Dealer prices, which had edged up during the month, advanced as much as $5.50 on a local mill order.

Cleveland — The market exploded when four area mills came into the market and auto production lists jumped $7. Some lists are scheduled for out-of-the district shipment, some for speculation. One broker's buying price went up $3 in a single day.

St. Louis—The market continues strong, but prices are generally unchanged despite advances in other markets. Mills are holding off buying, but there is very little if any material available.

Birmingham — The market is very active here and there is more demand for scrap than supply. Most dealers appear to be waiting for new prices. Some brokers seem to think dealers will sell heavily when new prices are established. Recent railroad lists showed considerable strength, with some items $6 to $7 above last month's figures.

Cincinnati—A local mill came into the market for a good tonnage at $4 over previous quotations. Other grades, except cast, moved up. A substantial tonnage is expected to go to Pittsburgh this month. One area list sold for $8.50 over the previous month.

Buffalo—All major scrap grades increased $3 a ton on the basis of local mill buys. Other grades rose a like amount due to influence of adjacent markets.

Boston — Broker activity sent this market up to its biggest rise in three months. Mill orders are improved slightly, but brokers are having a tough time buying scrap. No. 1 grades went up $3, other grades up from $2 to $4 in the stronger market.

West Coast—Prices are holding firm here. Mills are comfortable in spite of high operating rates and a comparatively slow scrap flow. Export continues at a brisk pace, contributing to the strong market.

look to

Luria Brothers & Co., Inc.

for complete

Service & Coverage

of

STAINLESS STEEL SCRAP

NICKEL-CHROME SCRAP

Luria Brothers and Company, Inc.

main office **PHILADELPHIA NATIONAL BANK BUILDING,** *Phila. 7, Pa.*

PLANTS

LEBANON, PENNA. — DETROIT (ECORSE), MICHIGAN

READING, PENNA. — PITTSBURGH, PENNA.

MODENA, PENNA. — ERIE, PENNA.

OFFICES

BIRMINGHAM, ALA. — BOSTON, MASS. — BUFFALO, N. Y. — CHICAGO, ILLINOIS — CLEVELAND, OHIO — DETROIT, MICHIGAN — HOUSTON, TEXAS — LEBANON, PENNA. — LOS ANGELES, CAL. — NEW YORK, N. Y. — PITTSBURGH, PENNA. — PUEBLO, COLORADO — READING, PENNA. — ST. LOUIS, MISSOURI — SAN FRANCISCO, CAL. — SEATTLE, WASH.

in Canada—MONTREAL, QUEBEC — HAMILTON, ONTARIO

IMPORT & EXPORT — **LIVINGSTON & SOUTHARD, INC.,** 99 Park Ave., New York, N. Y. • *Cable Address:* **FORENTRACO**

SCRAP PRICES *(Effective June 4, 1957)*

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$50.00 to $51.00
No. 2 hvy. melting	47.00 to 48.00
No. 1 dealer bundles	50.00 to 51.00
No. 1 factory bundles	57.00 to 58.00
No. 2 bundles	44.00 to 45.00
No. 1 busheling	50.00 to 51.00
Machine shop turn.	33.00 to 34.00
Mixed bor. and ms. turn.	33.00 to 34.00
Shoveling turnings	37.00 to 38.00
Cast iron borings	37.00 to 38.00
Low phos. punch'gs plate	55.00 to 56.00
Heavy turnings	48.00 to 49.00
No. 1 RR. hvy. melting	59.00 to 60.00
Scrap rails, random lgth.	68.00 to 69.00
Rails 2 ft and under	70.00 to 71.00
RR. steel wheels	67.00 to 68.00
RR. spring steel	67.00 to 68.00
RR. couplers and knuckles	67.00 to 68.00
No. 1 machinery cast	56.00 to 57.00
Cupola cast	47.00 to 48.00
Heavy breakable cast	45.00 to 46.00

Chicago

No. 1 hvy. melting	$46.00 to $47.00
No. 2 hvy. melting	44.00 to 45.00
No. 1 dealer bundles	47.00 to 48.00
No. 1 factory bundles	55.00 to 56.00
No. 2 bundles	39.00 to 40.00
No. 1 busheling	46.00 to 47.00
Machine shop turn.	30.00 to 31.00
Mixed bor. and turn.	32.00 to 33.00
Shoveling turnings	32.00 to 33.00
Cast iron borings	32.00 to 33.00
Low phos. forge crops	58.00 to 59.00
Low phos. punch'gs plate	53.00 to 54.00
Low phos. 3 ft and under	52.00 to 53.00
No. 1 RR. hvy. melting	55.00 to 57.00
Scrap rails, random lgth.	65.00 to 66.00
Rerolling rails	72.00 to 73.00
Rails 2 ft and under	71.00 to 72.00
Locomotive tires cut	60.00 to 61.00
Cut bolsters & side frames	61.00 to 62.00
Angles and splice bars	64.00 to 65.00
RR. steel car axles	78.00 to 79.00
RR. couplers and knuckles	58.00 to 59.00
No. 1 machinery cast	49.00 to 50.00
Cupola cast	45.00 to 46.00
Heavy breakable cast	43.00 to 44.00
Cast iron brake shoe	45.00 to 46.00
Cast iron wheels	52.00 to 53.00
Malleable	59.00 to 60.00
Stove plate	45.00 to 46.00
Steel car wheels	60.00 to 61.00

Philadelphia Area

No. 1 hvy melting	$55.00 to $56.00
No. 2 hvy. melting	47.00 to 48.00
No. 1 dealer bundles	55.00 to 56.00
No. 2 bundles	45.00 to 46.00
No. 1 busheling	55.00 to 56.00
Machine shop turn.	37.00 to 38.00
Mixed bor. short turn.	38.00 to 39.00
Cast iron borings	35.00 to 36.00
Shoveling turnings	40.00 to 41.00
Clean cast chem. borings	39.00 to 40.00
Low phos. 5 ft and under	57.50 to 58.50
Low phos. 2 ft and under	58.50 to 59.50
Low phos. punch'gs	58.50 to 59.50
Elec. furnace bundles	56.00 to 57.00
Heavy turnings	51.00 to 52.00
RR. steel wheels	61.00 to 62.00
RR. spring steel	61.00 to 62.00
Rails 18 in. and under	71.00 to 72.00
Cupola cast	45.00 to 46.00
Heavy breakable cast	54.00 to 55.00
Cast iron car wheels	59.00 to 60.00
Malleable	61.00 to 62.00
Unstripped motor blocks	39.00 to 40.00
No. 1 machinery cast	56.00 to 57.00

Cleveland

No. 1 hvy. melting	$49.00 to $50.00
No. 2 hvy. melting	42.00 to 43.00
No. 1 dealer bundles	49.00 to 50.00
No. 1 factory bundles	55.00 to 56.00
No. 2 bundles	39.00 to 40.00
No. 1 busheling	49.00 to 50.00
Machine shop turn.	22.00 to 23.00
Mixed bor. and turn.	26.00 to 27.00
Shoveling turnings	26.00 to 27.00
Cast iron borings	26.00 to 27.00
Cut struct'r'l & plates, 2 ft & under	54.00 to 55.00
Drop forge flashings	49.00 to 50.00
Low phos. punch'gs, plate	50.00 to 51.00
Foundry steel, 2 ft & under	47.00 to 48.00
No. 1 RR. heavy melting	51.00 to 52.00
Rails 2 ft and under	72.00 to 73.00
Rails 18 in. and under	73.00 to 74.00
Railroad grate bars	35.00 to 36.00
Steel axle turnings	33.00 to 34.00
Railroad cast	56.00 to 57.00
No. 1 machinery cast	55.00 to 56.00
Stove plate	49.00 to 50.00
Malleable	58.00 to 59.00

Youngstown

No. 1 hvy. melting	$52.00 to $53.00
No. 2 hvy. melting	44.00 to 45.00
No. 1 dealer bundles	52.00 to 53.00
No. 2 bundles	41.00 to 42.00
Machine shop turn.	20.00 to 21.00
Shoveling turnings	27.00 to 28.00
Cast iron borings	27.00 to 28.00
Low phos. plate	54.00 to 55.00

Buffalo

No. 1 hvy. melting	$43.00 to $44.00
No. 2 hvy. melting	39.00 to 40.00
No. 1 busheling	43.00 to 44.00
No. 1 dealer bundles	43.00 to 44.00
No. 2 bundles	35.00 to 36.00
Machine shop turn.	28.00 to 29.00
Mixed bor. and turn.	30.00 to 31.00
Shoveling turnings	34.00 to 35.00
Cast iron borings	31.00 to 32.00
Low phos. plate	47.00 to 48.00
Scrap rails, random lgth.	56.00 to 57.00
Rails 2 ft and under	66.00 to 67.00
RR. steel wheels	53.00 to 54.00
RR. spring steel	49.00 to 50.00
RR. couplers and knuckles	49.00 to 50.00
No. 1 machinery cast	45.00 to 46.00
No. 1 cupola cast	41.00 to 42.00

Detroit

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$43.00 to $44.00
No. 2 hvy. melting	33.00 to 34.00
No. 1 dealer bundles	43.00 to 44.00
No. 2 bundles	33.00 to 34.00
No. 1 busheling	43.00 to 44.00
Drop forge flashings	43.00 to 44.00
Machine shop turn.	23.00 to 24.00
Mixed bor. and turn.	26.00 to 27.00
Shoveling turnings	26.00 to 27.00
Cast iron borings	26.00 to 27.00
Low phos. punch'gs, plate	43.00 to 44.00
No. 1 cupola cast	47.00 to 48.00
Heavy breakable cast	43.00 to 44.00
Stove plate	44.00 to 45.00
Automotive cast	53.00 to 54.00

St. Louis

No. 1 hvy. melting	$41.00 to $42.00
No. 2 hvy. melting	37.00 to 38.00
No. 1 dealer bundles	41.00 to 42.00
No. 2 bundles	32.00 to 33.00
Machine shop turn.	26.00 to 27.00
Cast iron borings	30.00 to 31.00
Shoveling turnings	28.00 to 29.00
No. 1 RR. hvy. melting	51.00 to 52.00
Rails, random lengths	55.00 to 56.00
Rails 18 in. and under	62.00 to 63.00
Locomotive tires uncut	50.00 to 51.00
Angles and splice bars	54.00 to 55.00
Std. steel car axles	70.00 to 71.00
RR. specialties	54.00 to 55.00
Cupola cast	44.00 to 45.00
Heavy breakable cast	40.00 to 41.00
Cast iron brake shoes	43.00 to 44.00
Stove plate	41.00 to 42.00
Cast iron car wheels	45.00 to 46.00
Rerolling rails	64.00 to 65.00
Unstripped motor blocks	37.00 to 38.00

Boston

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$42.00 to $43.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 dealer bundles	42.00 to 43.00
No. 2 bundles	32.00 to 33.00
No. 1 busheling	42.00 to 43.00
Elec. furnace, 2 ft & under	44.00 to 45.00
Machine shop turn.	25.00 to 26.00
Mixed bor. and short turn.	26.00 to 27.00
Shoveling turnings	27.50 to 28.50
Clean cast. chem. borings	29.00 to 30.00
No. 1 machinery cast	42.00 to 43.00
Mixed cupola cast	34.00 to 35.00
Heavy breakable cast	42.00 to 43.00
Stove plate	32.00 to 33.00
Unstripped motor blocks	31.00 to 32.00

New York

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$49.00 to $50.00
No. 2 hvy. melting	41.00 to 42.00
No. 2 dealer bundles	40.00 to 41.00
Machine shop turn.	29.00 to 30.00
Mixed bor. and turn.	29.00 to 30.00
Shoveling turnings	31.00 to 32.00
Clean cast. chem. borings	30.00 to 31.00
No. 1 machinery cast	46.00 to 47.00
Mixed yard cast	41.00 to 42.00
Charging box cast	46.00 to 47.00
Heavy breakable cast	46.00 to 47.00
Unstripped motor blocks	33.00 to 34.00

Birmingham

No. 1 hvy. melting	$41.00 to $42.00
No. 2 hvy. melting	37.00 to 38.00
No. 1 dealer bundles	41.00 to 42.00
No. 2 bundles	29.00 to 30.00
No. 1 busheling	41.00 to 42.00
Machine shop turn.	33.00 to 34.00
Shoveling turnings	35.00 to 36.00
Cast iron borings	28.00 to 29.00
Electric furnace bundles	48.00 to 49.00
Elec. furnace, 3 ft & under	46.00 to 47.00
Bar crops and plate	51.00 to 52.00
Structural and plate, 2 ft	50.00 to 51.00
No. 1 RR. hvy. melting	48.00 to 49.00
Scrap rails, random lgth.	56.00 to 57.00
Rails, 18 in. and under	61.00 to 62.00
Angles & splice bars	57.00 to 58.00
Rerolling rails	60.00 to 61.00
No. 1 cupola cast	49.00 to 50.00
Stove plate	49.00 to 50.00
Charging box cast	34.00 to 35.00
Cast iron car wheels	38.00 to 39.00
Unstripped motor blocks	41.00 to 42.00

Cincinnati

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	$41.00 to $42.00
No. 2 hvy. melting	36.00 to 37.00
No. 1 dealer bundles	41.00 to 42.00
No. 2 bundles	33.00 to 34.00
Machine shop turn.	25.00 to 26.00
Mixed bor. and turn.	23.00 to 24.00
Shoveling turnings	28.00 to 29.00
Cast iron borings	23.00 to 24.00
Low phos. 18 in. & under	51.00 to 52.00
Rails, random lengths	54.00 to 55.00
Rails, 18 in. and under	64.00 to 65.00
No. 1 cupola cast	43.00 to 44.00
Hvy. breakable cast	40.00 to 41.00
Drop broken cast	53.00 to 54.00

San Francisco

No. 1 hvy. melting	$48.00
No. 2 hvy. melting	43.00
No. 1 dealer bundles	47.00
No. 2 bundles	35.00
Machine shop turn.	32.00
Cast iron borings	32.00
No. 1 RR. hvy. melting	48.00
No. 1 cupola cast	53.00

Los Angeles

No. 1 hvy. melting	$46.00
No. 2 hvy. melting	43.00
No. 1 dealer bundles	45.00
No. 2 bundles	33.00
Machine shop turn.	32.00
Shoveling turnings	34.00
Cast iron borings	31.00
Elec. furn. 1 ft and under (foundry)	57.00
No. 1 RR. hvy. melting	46.00
No. 1 cupola cast	$52.00 to $53.00

Seattle

No. 1 hvy. melting	$46.00
No. 2 hvy. melting	42.00
No. 2 bundles	$28.00 to $30.00
No. 1 cupola cast	47.00
Mixed yard cast	47.00

Hamilton, Ont.

No. 1 hvy. melting	$45.00
No. 2 hvy. melting	40.00
No. 1 dealer bundles	45.00
No. 2 bundles	34.00
Mixed steel scrap	42.00
Busheling	36.00
Bush., new fact., prep'd.	45.00
Bush., new fact., unprep'd	29.00
Machine shop turn.	22.00
Short steel turn.	30.00
Mixed bor. and turn.	24.00
Rails, rerolling	56.00
Cast scrap	52.00

for lower maintenance

it's ohio magnets

Ohio Magnets cost less to maintain because they're built with an extra margin of safety. So for extra magnet life, extra magnet value—always specify Ohio Magnets and Ohio Magnet Controllers. There's a type and size for every lifting job. Send for free copy of Bulletin 112, or consult the Yellow Pages for Ohio offices in principal cities. AA-1476

THE OHIO ELECTRIC MFG. CO.
5400 DUNHAM ROAD • MAPLE HEIGHTS
CLEVELAND, OHIO

Ohio Also Makes Separation Magnets • Nail Making Machines • Fractional Horsepower, Shell and Torque Motors

Sliding Tariff For Lead, Zinc?

Administration wants tariff on lead and zinc to move with changes in U. S. price.

Consumers and producers say (1) it looks good on paper, (2) it's the right direction, (3) but this version won't work.

▪ The Administration believes a sliding scale tariff on lead and zinc would go a long way toward strengthening the sagging domestic market. But a lot of people in industry don't agree.

On the home front, there are very few out-and-out opponents of the proposals. But there are almost no advocates. The vast majority of both producers and consumers of both metals simply don't think it will work.

Trade Opinion—"It's hard to tell just how it would work", says the sales manager of a major zinc and lead producer. 'We'll have to wait and see".

"I don't like it", reports a spokesman for a major lead consumer. "They're looking in the right direction", he concedes, " but I can't see how they're going to make it work".

"It looks attractive on paper, but it will be very hard to make it operate", says a representative of another major producer of both lead and zinc. The net result, according to this company, will be price and supply instability. As the price goes up the duty will be suspended, according to the proposals. This will bring in more imports, drive the price down, and result in resumption of tariffs. The cycle will start all over again.

Other Possibilities — A better idea, says this producer, would be to peg a sliding scale of tariffs on the price abroad. When the foreign market sags a higher tariff would prevent an influx of metal which would drag the domestic market down.

There is some sentiment among consumers that the Dept. of Interior sliding scale tariff proposals will be used as a decoy. They say it is very possible that while attention is directed toward hearings and modification of these, a bloc of western mining states Congressmen will attempt to tag a proviso for a 6¢ excise tax on imports of lead and zinc on the "end of another non-related finance bill".

On the international front, countries which would be most affected by the tariff are not happy. Canada is one of them.

In Congress—The situation may turn out to be much ado about nothing. The sliding scale tariff proposals are part of the Dept. of Interior long range mineral program. The current proposals (which call for selection of one of the two) are:

Lead

Plan A

Price per lb.	Duty Ore	Metal
17¢ or over	none	none
16¢ to 17¢	¾¢	1 1/16¢
15¢ to 16¢	1¼¢	2 1/16¢
below 15¢	2¢	3 1/16¢

Plan B

17¢ or over	none	none
16¢ to 17¢	½¢	1¢
15¢ to 16¢	1¼¢	2¢
below 15¢	2¢	3¢

In reference to zinc the proposals are:

Zinc

Plan A

Price per lb.	Duty Ore	Metal
14½¢ or over	none	none
13½¢ to 14½¢	6/10¢	7/10¢
12½¢ to 13½¢	1 3/10¢	1 45/100
below 12½¢	2¢	2 2/10¢

Plan B

14½¢ or over	none	none
13½¢ to 14½¢	6/10¢	½¢
12½¢ to 13½¢	1 2/10¢	1¼¢
below 12½¢	1 8/10¢	2¢

Long Fight—The program is now in the hands of the Senate Committee on Interior and Insular Affairs. A hearing will be held, and it is unlikely that the program will get out of committee without modification. It is even more unlikely that it will pass both Houses

Monthly Average Metal Prices

(Cents per lb except as noted)

Average prices of the major nonferrous metals in May based on quotations appearing in THE IRON AGE, were as follows.

Electrolytic copper, del'd Conn. Valley	32.00
Copper, Lake	32.00
Straits Tin, New York	98.287
Zinc, E. St. Louis	11.923
Lead, St. Louis	15.023
Aluminum ingot, frt allow'd	27.10

Note: Quotations are going prices.

Primary Prices

cents per lb	Current price	last price	date of change
Aluminum ingot	27.10	25.90	8 10 56
Aluminum pig	25.00	24.00	8 10 56
Copper (E)	32.00	34.00	2 18 57
Copper (CS)	30.00	30.50	5 9 57
Copper (L)	32.00	34.00	2 19 57
Lead, St. L.	14.80	15.30	5 16 57
Lead, N. Y.	15.00	15.50	5 16 57
Magnesium ingot	36.00	34.50	8 13 56
Magnesium pig	35.25	33.75	8 13 56
Nickel	74.00	64.50	12 6 56
Titanium sponge	250 275	270 300	12 4 56
Zinc, E. St. L.	11.50	12.00	5 13 57
Zinc, N. Y.	12.00	12.50	5 13 57

ALUMINUM: 99% ingot frt allwd. COPPER: (E) = electrolytic, (CS) = custom smelters, electrolytic, (L) = lake. LEAD: common grade. MAGNESIUM: 99.8% pig. Velasco, Tex. NICKEL: Port Colbourne, Canada. ZINC: prime western. TIN: see right; other primary prices, pg. 156.

without numerous amendments being considered.

The final version will probably look a lot different than current proposals. And even if the sliding scale tariffs get through this legislative maneuvering unscathed, it will be many months before it can be put in effect. Market conditions will probably have changed by then, and the effect of the tariff on the market may be totally different.

Titanium

Titanium Metals Corp. of America, New York, reduced mill prices an average of 10 pct, effective with shipments Monday, June 3. Included are bar, billet, wire, plate, extrusions and commercially pure sheet and strip. Not included are alloy sheet and strip.

The other producers followed within the week, with the exception of special alloys, available from only one source. These did not move, in many cases.

There was also no reduction in the price of sponge, although it is the industry sentiment that one is in the air.

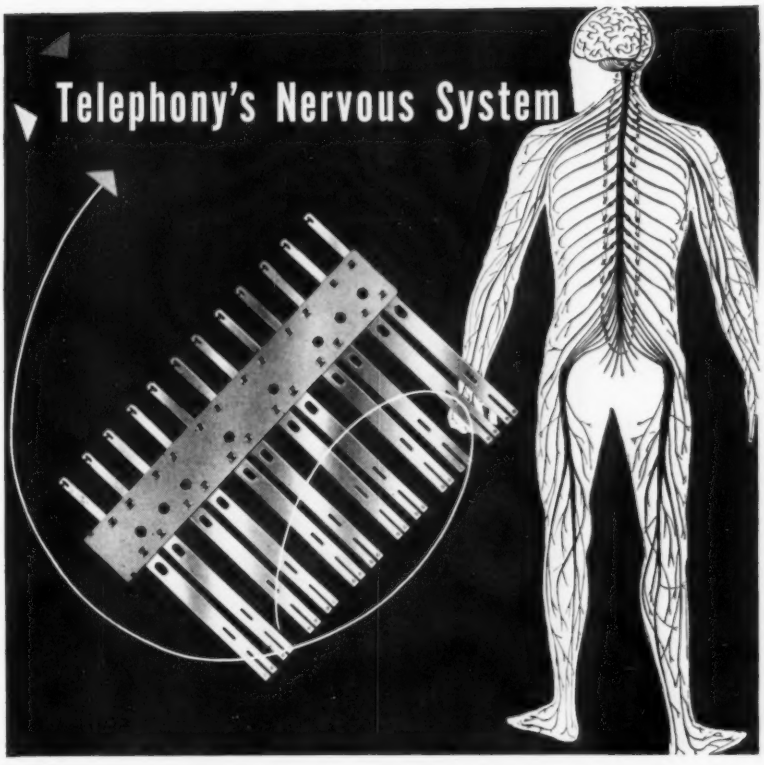
Copper

Major producers in Rhodesia are straining to halt the downward trend of the current world copper market. Latest action includes (1) Agreement by Rhodesian Selection Trust and Anglo-American Corp. on a more stable method of pricing, and (2) Roan Antelope and Mufulira, largest of RST will cut production by about 10 pct, 20,000 tons per year.

The new pricing arrangement, details of which have not been made public, is now being considered by customers of the two groups. If it goes through, no major African producer will be following the daily fluctuations of the LME.

Tin prices for the week: May 29 — 98.625; May 30 — holiday; May 31—98.50; June 3—98.50; June 4—98.375.*

*Estimate



. . . relies on "neurons" of Seymour Nickel Silver

Dial telephones carry your voice to the ends of the earth through an intricate electrical network which closely resembles the human nervous system. Seymour nickel silver plays a key role in modern communications as part of the North Electric Company "Crossbar Switching System" which automates independent telephone exchanges.

Tiny, neuron-like contacts on North Crossbar switch assemblies rely on flat springs of even-tempered Seymour nickel silver for *trillions* of "makes-and-breaks".

Easy to work, corrosion-resistant and possessing excellent conductivity, Seymour nickel silver has an enviable reputation for quality and uniformity among hundreds of manufacturers who say: — "Specify SEYMOUR. You KNOW it's good!"

Perhaps Seymour metallurgists can help solve your materials problems. Tell us your requirements.

Long distance telephone operators link distant points to the North Crossbar System in Seymour, Indiana.

THE SEYMOUR MANUFACTURING COMPANY
2 FRANKLIN STREET
SEYMOUR, CONNECTICUT

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

ALUMINUM

(Base 30,000 lb, f.o.b. ship. pt., frt. allowed)

Flat Sheet (Mill Finish) and Plate

("F" temper except 6061-0)

Alloy	.032	.081	.136-.249	.250-Up
1100, 1100, 3003	44.3	42.1	40.9	40.9
5052	51.8	46.8	45.1	43.9
6061-0	48.9	44.6	43.8	43.6

Extruded Solid Shapes

Factor	6063 T-5	6063 T-6
6- 8	42.7-44.4	57.6-61.1
10-14	43.4-44.8	58.4-63.7
24-26	45.4-46.9	68.7-73.1
36-38	54.8-55.4	91.8-94.9

Screw Machine Stock—2011-T-3

Size*	¼	5/16-⅜	½-1	1¼-1¾
Price	59.7	58.8	57.4	55.9

Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length"→	72	90	120	144
.019 gage	$1.352	$1.803	$2.254	$2.704
.024 gage	1.686	2.252	2.815	3.378

MAGNESIUM

(F.o.b. shipping Pt., carload frt. allowed)

Sheet and Plate

Type↓ Gage→	.250-3.00	.250-2.00	.188	.081	.032
AZ31B Stand. Grade	.....	67.9	69.0	77.9	108.1
AZ31B Spec.	.....	93.3	95.7	108.7	171.8
Tread Plate	.....	70.6	71.7	.....	.....
Tooling Plate	73.0	.....	.....	.....	.....

Extruded Shapes

factor→	6-8	12-14	24-26	36-38
Comm. Grade (AZ31C)	69.6	70.7	75.6	89.8
Spec. Grade (AZ31B)	84.6	85.7	90.6	104.8

Alloy Ingot

AZ91B (Die Casting) ..... 37.25 (delivered)
AZ63A, AZ92A, AZ91C (Sand Casting) 40.75 (Velasco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	126	106	128
Strip, CR	124	108	138
Rod, bar, HR	107	89	109
Angles, HR	107	89	109
Plates, HR	120	105	121
Seamless tube	157	129	200
Shot, blocks	...	87	...

COPPER, BRASS, BRONZE

(Freight included on 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	54.13	.....	51.36	54.32
Brass, 70/30	46.85	47.39	46.75	49.76
Brass, Low	49.80	50.34	49.74	52.61
Brass, R L	50.84	51.38	50.78	53.65
Brass, Naval	50.91	.....	45.22	54.32
Munts Metal	48.99	.....	44.80	.....
Comm. Bs.	52.43	52.97	52.37	54.99
Mang. Bs.	54.65	.....	48.75	.....
Phos. Bs. 5%	73.17	.....	73.67	.....

Free Cutting Brass Rod 34.97

TITANIUM

(10,000 lb base, f.o.b. mill)

Sheet and strip, commercially pure, $9.50-$10.60; alloy, $14.75; Plate, HR, commercially pure, $8.00-$8.75; alloy, $10.75. Wire, rolled and/or drawn, commercially pure, $7.50-$8.00; alloy, $10.00; Bar, HR or forged, commercially pure, $6.15-6.40; alloy, $6.15-$6.35; billets, HR, commercially pure, $6.00-$6.25; alloy, $6.00-$6.20.

PRIMARY METAL

(Cents per lb, unless otherwise noted)

Antimony, American, Laredo, Tex... 33.50
Beryllium aluminum 5% Be, Dollar per lb contained Be $74.75
Beryllium copper, per lb cont'd Be..$43.00
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading $71.50
Bismuth, ton lots .....$ 2.25
Cadmium, del'd .....$ 1.70
Calcium, 99.9% small lots .....$ 4.55
Chromium, 99.8% metallic basis ...$ 1.31
Cobalt, 97-99% (per lb) ....$2.00 to $2.07
Germanium, per gm, f.o.b. Miami, Okla., refined .....$39.50-$53.50
Gold, U. S. Treas., per troy oz. $35.00
Indium, 99.9% dollars per troy oz...$ 2.25
Iridium, dollars per troy oz....$90 to $100
Lithium, 98% .....$11.00 to $14.00
Magnesium, sticks, 100 to 500 lb... 59.00
Mercury, dollars per 76-lb flask, f.o.b. New York .....$255 to $257
Nickel oxide sinter at Copper Cliff, Ont., contained nickel 71.25
Palladium, dollars per troy oz...$23 to $24
Platinum, dollars per troy oz....$92 to $95
Rhodium .....$120.00 to $125.00
Silver ingots (c per troy oz.) 90.875
Thorium, per kg $43.00
Uranium, normal per kg $40.00
Vanadium .....$ 3.45
Zirconium sponge $10.00

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5 ingot
No. 115 ..... 30.50
No. 120 ..... 29.25
No. 123 ..... 27.50
80-10-10 ingot
No. 305 ..... 34.50
No. 315 ..... 32.50
88-10-2 ingot
No. 210 ..... 42.25
No. 215 ..... 38.50
No. 245 ..... 34.50
Yellow ingot
No. 405 ..... 25.00
Manganese bronze
No. 421 ..... 28.00

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
0.30 copper max. 24.00-24.75
0.60 copper max. 23.75-24.50
Piston alloys (No. 122 type)..23.00-24.50
No. 12 alum. (No. 2 grade)...21.00-22.00
108 alloy 21.50-22.00
195 alloy 23.75-25.00
13 alloy (0.60 copper max.)...23.75-24.50
AXS-679 .....21.50-22.00

Steel deoxidizing aluminum, notch bar granulated or shot

Grade 1—95-97½% 22.00-22.75
Grade 2—92-95% 21.00-21.50
Grade 3—90-92% 20.00-20.50
Grade 4—85-90% 18.75-19.50

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	28	27¼
Yellow brass	21⅛	19⅝
Red brass	24¾	24
Comm. bronze	25¾	25
Mang. bronze	19¾	19
Yellow brass rod ends	21	....

Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 26
No. 2 copper wire 24½
Light copper 22
*Refinery brass 23¾
Copper bearing material 23¼
*Dry copper content.

Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 26
No. 2 copper wire 24½
Light copper 22
No. 1 composition 23
No. 1 comp turnings 22⅛
Hvy. yellow brass solids 17
Brass pipe 19
Radiators 18

Aluminum

Mixed old cast ..... 13½—14⅛
Mixed new clips ..... 15 —16
Mixed turnings, dry ..... 14 —15

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

No. 1 copper wire ..... 23 —23⅛
No. 2 copper wire ..... 21½—22
Light copper ..... 19¾—20⅛
Auto radiators (unsweated).. 15¼—15⅝
No. 1 composition ..... 20½—21
No. 1 composition turnings... 20 —20⅛
Cocks and faucets ..... 16½—17
Clean heavy yellow brass .... 14 —14⅛
Brass pipe ..... 17 —17⅛
New soft brass clippings .... 18 —18⅛
No. 1 brass rod turnings .... 15½—15¾

Aluminum

Alum. pistons and struts .... 5½— 6
Aluminum crankcases ..... 10½—11
1100 (2S) aluminum clippings 13½—14
Old sheet and utensils ..... 10½—11
Borings and turnings ..... 6½— 7
Industrial castings ..... 10½—11
2024 (24S) Clippings ..... 12 —12⅛

Zinc

New zinc clippings ..... 4 — 4⅛
Old zinc ..... 3 — 3¼
Zinc routings ..... 1⅝— 2
Old die cast scrap ..... 1¾— 2

Nickel and Monel

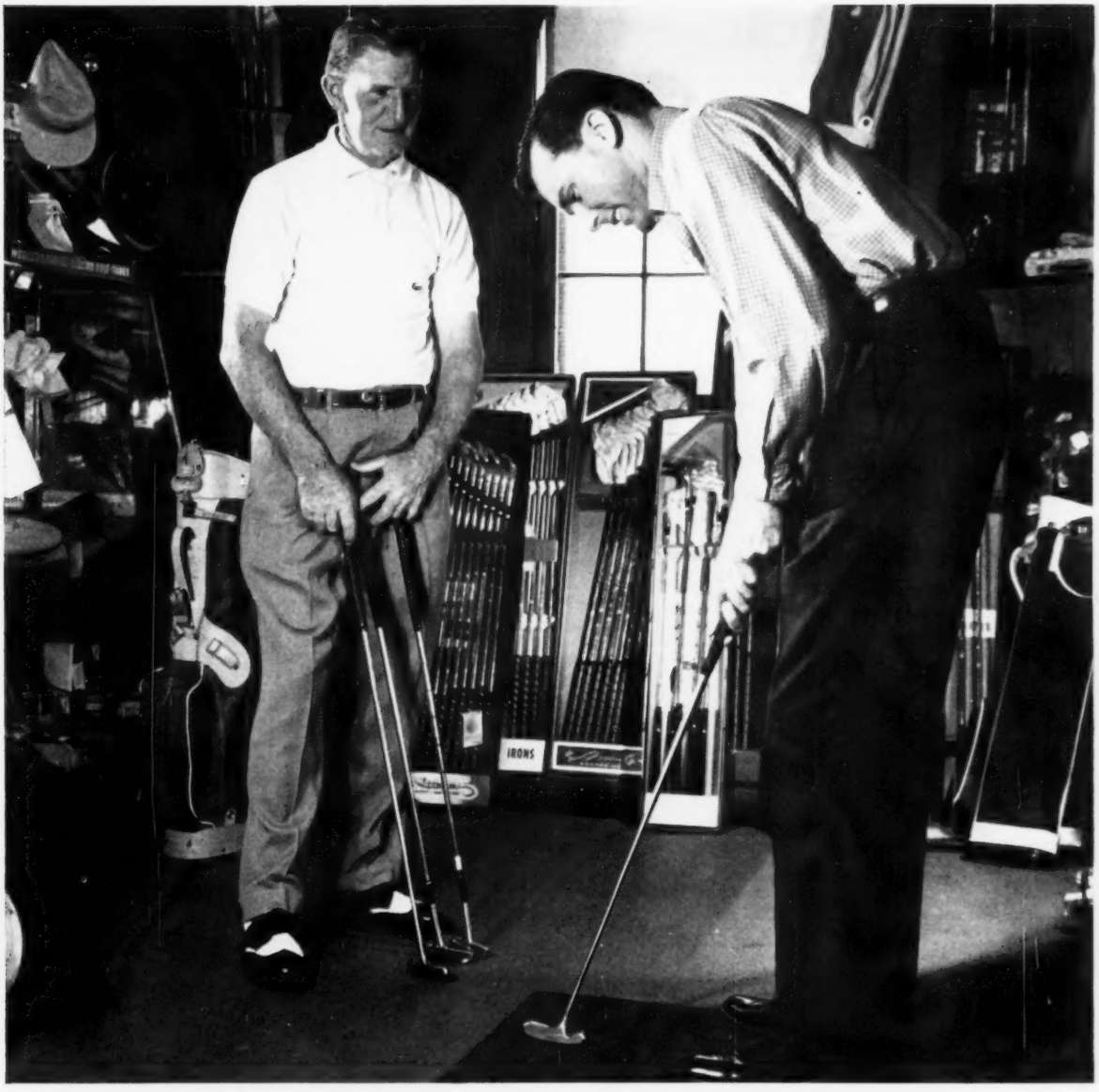
Pure nickel clippings 85-90
Clean nickel turnings 70-75
Nickel anodes 85-90
Nickel rod ends 85-90
New Monel clippings 45-48
Clean Monel turnings 35-40
Old sheet Monel 44-45
Nickel silver clippings, mixed. 21
Nickel silver turnings, mixed. 18

Lead

Soft scrap lead ..... 10½—11
Battery plates (dry) ..... 5¾— 6
Batteries, acid free ..... 2¾— 3¼

Miscellaneous

Block tin ..... 75 —76
No. 1 pewter ..... 59 —60
Auto babbitt ..... 39 —40
Mixed common babbitt ..... 11½—12
Solder joints ..... 17 —17½
Siphon tops 42
Small foundry type ..... 13¼—13½
Monotype ..... 13⅛—13½
Lino. and stereotype ..... 12¼—12½
Electrotype ..... 11¼—11½
Hand picked type shells ..... 8¼— 8¾
Lino. and stereo. dross ..... 4 — 4¼
Electro. dross ..... 3¼— 3½



Get BRASS that "fits your style"

FROM A REAL "PRO SHOP"

Out of all those putters, there's one that fits you better than all the rest . . . suits your style precisely, and gives you greater accuracy.

Just so with Bristol Brass. Out of scores of standard alloys, Bristol can fit one of them to your special needs more closely than you ever believed possible. And your product will become easier both to make and sell.

What's more, Bristol sales engineers always keep trying to fit the strip, rod or wire more closely to the product . . . always keep trying to improve on the original specifications. That, incidentally, is why Bristol keeps customers. And we'd be proud to have *you* on our books.

and for BRASS FORGINGS, too . . . get them from . . . ACCURATE BRASS CORP., *Subsidiary of The Bristol Brass Corp.*, now in a new and modern plant at Bristol, Conn.

The **BRISTOL BRASS**
CORPORATION
Since 1850, makers of Brass strip, rod and wire in
BRISTOL, CONNECTICUT

Bristol Brass has offices and warehouses in Boston, Buffalo, Chicago, Cleveland, Dayton, Detroit, Milwaukee, New York, Philadelphia, Pittsburgh, Rochester, Syracuse.

IRON AGE

STEEL PRICES

(Effective June 4, 1957)

Italics identify producers listed in key at end of table. Base prices, f.o.b., mill in cents per lb., unless otherwise noted. Extras apply.

		BILLETS, BLOOMS, SLABS			PILING	SHAPES STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide-Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			$107.00 *B3*		5.05 *B3*	7.40 *B3*	5.05 *B3*						
	Buffalo, N. Y.	$74.00 *B3, R3*	$91.50 *B3, R3*	$107.00 *B3, R3*	5.90 *B3*	5.05 *B3*	7.40 *B3*	5.05 *B3*	4.675 *B3, R3*	6.85 *R7*	6.95 *B3*			
	Claymont, Del.													14.55 *C11*
	Harrison, N. J.													
	Conshohocken, Pa.		$96.50 *A2*	$114.00 *A2*					4.725 *A2*	6.90 *A2*	6.95 *A2*			
	New Bedford, Mass.									7.30 *R6*				
	Johnstown, Pa.	$74.00 *B3*	$91.50 *B3*	$107.00 *B3*		5.05 *B3*	7.40 *B3*							
	Boston, Mass.									7.40 *T8*				14.90 *T8*
	New Haven, Conn.									7.30 *D1*				
	Baltimore, Md.									6.85 *T8*				
	Phoenixville, Pa.					5.85 *P2*		5.85 *P2*						
	Sparrows Pt., Md.								4.675 *B3*		6.95 *B3*			
	Bridgeport, Wallingford, Conn.	$79.00 *N8*	$96.50 *N8*	$107.00 *N8*						7.30 *W1* 6.95 *N8*				
	Pawtucket, R. I. Worcester, Mass.									7.48 *A5,N7*				14.90 *N7*
MIDDLE WEST	Alton, Ill.								4.675 *L1*					
	Ashland, Ky.								4.675 *A7*					
	Canton-Massillon, Dover, Ohio		$94.00 *R3*	$107.00 *R3, T5*						6.85 *G4*		10.10 *G4*		14.55 *G4*
	Chicago, Ill. Franklin Park, Ill. Evanston, Ill.	$74.00 *U1, R3*	$91.50 *U1, R3,W8*	$107.00 *U1, R3,W8*	5.90 *U1*	5.00 *U1,W8* 5.00 *P13*	7.35 *U1,Y1* 6.00 *W8*	5.00 *U1*	4.675 *N4* 4.675 *A1*	6.95 *A1,T8* 6.95 *M8*			7.75 *W8, S9*	14.55 *A1, S9,T8*
	Cleveland, Ohio									6.85 *A5,J3*			7.75 *J3*	
	Detroit, Mich.			$107.00 *R5*					4.775 *G3, M2*	6.95 *M2,G3, D2,P11*	7.05 *G3*	10.10 *G3, D2*	7.75 *G3*	
	Anderson, Ind.									6.85 *G4*		10.10 *G4*		
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana	$74.00 *U1*	$91.50 *U1*	$107.00 *U1, Y1*	5.90 *I3*	5.00 *U1*	7.35 *U1,I3*	5.25 *I3*	4.675 *U1, I3,Y1*	6.85 *Y1*	6.95 *U1, I3,Y1*	10.20 *Y1*	7.75 *U1, Y1*	
	Sterling, Ill.	$74.00 *N4*				5.00 *N4*			4.775 *N4*					
	Indianapolis, Ind.									7.00 *C5*				
	Newport, Ky.												7.75 *A9*	
	Middletown, Ohio													
	Niles, Warren, Ohio Sharon, Pa.		$91.50 *S1, C10*	$107.00 *S1, C10*					4.675 *S1, R3*	6.85 *T4*	6.95 *S1, R3*	10.00 *S1, R3*	7.75 *S1*	14.55 *S1*
	Pittsburgh, Pa. Midland, Pa. Butler, Pa.	$74.00 *U1*	$91.50 *U1, C11*	$107.00 *U1, C11*	5.90 *U1*	5.00 *U1, J3*	7.35 *U1, J3*	5.00 *U1*	4.675 *P6*	5.750 *P6* 6.85 *J3,B4, S7*			7.75 *S9*	14.55 *S9*
	Portsmouth, Ohio													
	Weirton, Wheeling, Follansbee, W. Va.					5.00 *W3*			4.675 *W3*	6.85 *W3,F3*	6.95 *W3*	9.65 *W3*		
	Youngstown, Ohio	$74.00 *R3*	$91.50 *Y1, C10*	$107.00 *Y1*			7.35 *Y1*			6.85 *Y1,C5*	6.95 *U1, Y1*	10.20 *Y1*	7.75 *U1, Y1*	
WEST	Fontana, Cal.	$83.50 *K1*	$101.00 *K1*	$128.00 *K1*		5.75 *K1*	8.10 *K1*	5.90 *K1*	5.525 *K1*	8.70 *K1*				
	Geneva, Utah		$91.50 *C7*			5.00 *C7*	7.35 *C7*							
	Kansas City, Mo.					5.10 *S2*	7.45 *S2*		4.925 *S2*		7.20 *S2*			
	Los Angeles, Torrance, Cal.		$101.00 *B2*	$127.00 *B2*		5.70 *C7, B2*	8.05 *b2*		5.425 *B2, C7*	8.90 *C1*			8.95 *B2*	
	Minnequa, Colo.					5.30 *C6*			5.775 *C6*					
	Portland, Ore.					5.75 *O2*								
	San Francisco, Niles, Pittsburg, Cal.		$101.00 *B2*			5.65 *B2*	8.00 *B2*		5.425 *C7,B2*					
	Seattle, Wash.		$105.00 *B2*			5.75 *B2*	8.10 *B2*		5.675 *B2*					
SOUTH	Atlanta, Ga.					5.20 *A8*			4.875 *A8*					
	Fairfield, Ala. City, Birmingham, Ala.	$74.00 *T2*	$91.50 *T2*			5.00 *T2,R3* 5.00 *C16*	7.35 *T2*		4.675 *T2,R3* 4.975 *C10* 4.675 *C16*		6.95 *T2*			
	Houston, Lone Star, Texas	$80.00 *L3*	$96.50 *S2*	$112.00 *S2*		5.10 *S2*	7.45 *S2*		4.925 *S2*		7.20 *S2*			

STEEL PRICES

(Effective June 4, 1957)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		SHEETS									WIRE ROD	TINPLATE†		BLACK PLATE
		Hot-rolled 18 ga. & hvyr.	Cold-rolled	Galvanized	Enameling	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot-rolled 19 ga.		Coke* 1.25-lb. base box	Electro* 0.25-lb. base box	Hollowware Enameling 29 ga.
EAST	Bethlehem, Pa.													
	Buffalo, N. Y.	4.675 *B3*	5.75 *B3*				6.90 *B3*	8.525 *B3*			5.80 *W6*			
	Claymont, Del.													
	Coatesville, Pa.													
	Conshohocken, Pa.	4.725 *A2*	5.80 *A2*				6.95 *A2*							
	Harrisburg, Pa.													
	Hartford, Conn.													
	Johnstown, Pa.										5.80 *B3*			
	Fairless, Pa.	4.725 *U1*	5.80 *U1*				6.95 *U1*	8.575 *U1*				$10.15 *U1*	$8.85 *U1*	
	New Haven, Conn.													
	Phoenixville, Pa.													
	Sparrows Pt., Md.	4.675 *B3*	5.75 *B3*	6.30 *B3*			6.90 *B3*	8.575 *B3*	9.275 *B3*		5.90 *B3*	$10.15 *B3*	$8.85 *B3*	
	Worcester, Mass.										6.10 *A5*			
	Trenton, N. J.													
MIDDLE WEST	Alton, Ill.										6.00 *L1*			
	Ashland, Ky.	4.675 *A7*		6.30 *A7*	6.325 *A7*									
	Canton-Massillon, Dover, Ohio			6.30 *R3,R1*										
	Chicago, Joliet, Ill.	4.675 *W8, A1*					6.90 *U1*			5.80 *K2*	5.80 *A5,R3, N4,W8, K2*			
	Sterling, Ill.										5.90 *N4, K2*			
	Cleveland, Ohio	4.675 *J3, R3*	5.75 *J3, R3*		6.325 *R3*		6.90 *R3*	8.525 *R3, J3*			5.80 *A5*			
	Detroit, Mich.	4.775 *G3, M2*	5.85 *G3* 5.75 *M2*				7.00 *G2*	8.625 *G3*						
	Newport, Ky.	4.675 *A9*	5.75 *A9*											
	Gary, Ind. Harbor, Indiana	4.675 *U1, I3,Y1*	5.75 *U1, I3,Y1*	6.30 *U1, I3*	6.325 *U1, I3,Y1*	6.70 *U1*	6.90 *U1, Y1,I3*	8.525 *U1, Y1*			5.80 *Y1*	$10.05 *U1, Y1*	$8.75 *I3, U1,Y1*	7.80 *U1, Y1*
	Granite City, Ill.	4.875 *G2*	5.95 *G2*	6.80 *G2*	6.825 *G2*								$8.88 *G2*	7.60 *G2*
	Kokomo, Ind.			6.40 *C9*							5.90 *C9*			
	Mansfield, Ohio		5.75 *E2*			6.70 *E2*								
	Middletown, Ohio		5.75 *A7*	6.30 *A7*	6.325 *A7*	6.70 *A7*								
	Niles, Warren, Ohio Sharon, Pa.	4.675 *S1, R3,N3*	5.75 *R3*	6.30 *R3*	6.325 *N3*	6.70 *N3*	6.90 *S1, R3*	8.525 *S1, R3*					$8.75 *R3*	
	Pittsburgh, Pa. Midland, Pa. Butler, Pa.	4.675 *U1, J3,P6*	5.75 *U1, J3,P6*	6.30 *U1, J3*	6.325 *U1*		6.90 *U1, J3,R3*	8.525 *U1, J3*	9.275 *U1*		5.80 *A5, P6,J3*	$10.05 *J3, U1*	$8.75 *U1, J3*	7.50 *U1, J3*
	Portsmouth, Ohio	4.675 *P7*	5.75 *P7*								5.80 *P7*			
	Weirton, Wheeling, Follansbee, W. Va.	4.675 *W3, W5*	5.75 *W3, W5,P3*	6.30 *W3, W5*		6.70 *W3, W5*	6.90 *W3*	8.525 *W3*				$10.05 *W5, W3*	$8.75 *W5, W3*	7.50 *W5*
	Youngstown, Ohio	4.675 *U1, Y1*	5.75 *Y1*		6.325 *Y1*		6.90 *Y1*	8.525 *Y1*			5.80 *Y1*			
WEST	Fontana, Cal.	5.525 *K1*	7.00 *K1*				7.75 *K1*	9.775 *K1*				$10.80 *K1*	$9.80 *K1*	
	Geneva, Utah	4.775 *C7*												
	Kansas City, Mo.										6.05 *S2*			
	Los Angeles, Torrance, Cal.										6.60 *B2*			
	Minnequa, Colo.										6.05 *C6*			
	San Francisco, Niles, Pittsburg, Cal.	5.375 *C7*	6.70 *C7*	7.05 *C7*							6.60 *C7*	$10.80 *C7*	$9.50 *C7*	
	Seattle, Wash.													
SOUTH	Atlanta, Ga.													
	Fairfield, Ala. Alabama City, Ala.	4.675 *T2, R3*	.575 *T2*	6.30 *T2, R3*							5.80 *T2,R3*	$10.15 *T2*	$8.85 *T2*	
	Houston, Tex.										6.05 *S2*			

† Special coated mfg. terne deduct 50¢ from 1.25-lb. coke base box price. Can-making quality blackplate 55 to 128 lb. deduct $2.20 from 1.25-lb. coke base box.

* COKES: 1.50-lb. add 25¢.

ELECTRO: 0.80-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add $1.00. Differential 1.00 lb./0.25 lb. add 65¢.

STEEL PRICES

(Effective June 3, 1957)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply

		BARS						PLATES				WIRE
		Carbon† Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr's. Bright
EAST	Bethlehem, Pa.				6.125 *B3*	8.325 *B3*	7.40 *B3*					
	Buffalo, N. Y.	5.075 *B3,R3*	5.075 *B3,R3*	6.90 *B5*	6.125 *B3,R3*	8.325 *B5,B3*	7.40 *B3*	4.85 *B3*				7.20 *W6*
	Claymont, Del.							5.70 *C4*		6.85 *C4*	7.55 *C4*	
	Conteaville, Pa.							5.25 *L4*		6.85 *L4*	7.55 *L4*	
	Conshohocken, Pa.							4.95 *A2*	5.925 *A2*	6.85 *A2*	7.25 *A2*	
	Harrisburg, Pa.							5.80 *P2*	6.275 *P2*			
	Hartford, Conn.			7.35 *R3*		8.625 *R3*	7.40 *B3*					
	Johnstown, Pa.	5.075 *B3*	5.075 *B3*		6.125 *B3*			4.85 *B3*		6.85 *B3*	7.25 *B3*	7.20 *B3*
	Fairless, Pa.	5.225 *U1*	5.225 *U1*		6.275 *U1*							
	Newark, N. J.			7.30 *W10*		8.50 *W10*						
	Camden, N. J.			7.30 *P10*		8.50 *P10*						
	Bridgeport, Conn. Putnam, Conn.	5.30 *N8*	5.30 *N8*	7.20 *N8* 7.40 *W10*	6.20 *N8*	8.475 *N8*	7.50 *N8*					
	Sparrows Pt., Md.		5.075 *B3*					4.85 *B3*		6.85 *B3*	6.85 *B3*	7.30 *B3*
	Palmer, Worcester, Readville, Mass. Milton, Mass.	5.225 *M7*	5.225 *M7*	7.40 *B5,C14*		8.625 *A5* 8.625 *B5*						7.50 *A5,W6* 9.025 *T8*
	Spring City, Pa.			7.30 *K4*		8.50 *K4*						
MIDDLE WEST	Alton, Ill.	5.275 *L1*										7.40 *L1*
	Ashland, Newport, Ky.							4.85 *A7,A9*		6.85 *A9*		
	Canton, Massillon, Ohio			6.85 *R3,R2*	6.125 *R3,T5*	8.325 *R3,R2, T5*						
	Chicago, Joliet, Ill.	5.075 *U1,R3, W8,N4* 5.075 *P13*	5.075 *U1,R3, N4* 5.075 *P13*	6.85 *A5,B5, W10,L2 W8,N9*	6.125 *U1,R3, W8*	8.325 *A5,B5, W8,L2,N9, W10*	5.875 *W8* 7.425 *U1*	4.85 *U1,13, W8,A1*	5.925 *U1*	6.85 *U1,W8*	7.25 *U1*	7.20 *A5,K2 R3,N4,W7*
	Cleveland, Ohio	5.075 *R3*	5.075 *R3*	6.85 *A5,C13*		8.325 *A5,C13*	7.425 *R3*	4.95 *J3,R3*	5.925 *J3*		7.25 *J3,R3*	7.20 *A5, C13*
	Detroit, Mich.	5.175 *G3*	5.425 *G3*	7.05 *B5,P8* 7.10 *P3* 6.85 *R5*	6.225 *G3* 6.125 *R5*	8.525 *B5,P3, P8* 8.325 *R5*	7.525 *G3*	4.95 *G3*		6.90 *G3*		
	Duluth Minn.											7.20 *A5*
	Gary, Ind. Harbor, Crawfordsville	5.075 *U1,13, Y1*	5.075 *U1,13, Y1*	6.85 *R3,M5*	6.125 *U1,13, Y1*	8.325 *R3,M4*	7.425 *U1,13, Y1*	4.85 *U1,13, Y1*	5.925 *13*	6.85 *U1,Y1*	7.25 *U1,Y1*	7.30 *M4*
	Granite City, Ill.							5.05 *G2*				
	Kokomo, Ind.											7.30 *C9*
	Sterling, Ill.	5.175 *N4*	5.175 *N4*					4.85 *N4*				7.30 *K2*
	Niles, Warren, Ohio Sharon, Pa.			6.85 *C10*	6.125 *C10,S1*	8.325 *C10*	7.425 *S1*	4.85 *S1,R3*		6.85 *S1*	7.25 *S1,R3*	
	Pittsburgh, Pa. Midland, Pa.	5.075 *U1, C11,J3*	5.075 *U1,J3*	6.85 *A5,C8, J3,R3,S9, B4,W10,C11*	6.125 *U1, C11,J3*	8.325 *A5,R3, S9,C8,W10, C11*	7.425 *U1,J3*	4.85 *U1,J3*	5.925 *U1*	6.85 *U1,J3*	7.25 *U1,J3*	7.20 *A5,J3, P6*
	Portsmouth, Ohio											7.20 *P7*
	Weirton, Wheeling, Follansbee, W. Va.							4.85 *W5*				
	Youngstown, Ohio	5.075 *U1, Y1,R3*	5.075 *U1, Y1,R3*	6.85 *U1,Y1, F2*	6.125 *U1,Y1*	8.325 *Y1,F2*	7.425 *U1,Y1*	4.85 *U1,Y1, R3*		6.85 *Y1*	7.25 *Y1* 7.25 *U1*	7.20 *Y1*
WEST	Emeryville, Cal.	5.825 *J5*	5.825 *J5*									
	Fontana, Cal.	5.775 *K1*	5.775 *K1*		7.175 *K1*		8.125 *K1*	5.60 *K1*		7.60 *K1*	8.00 *K1*	
	Geneva, Utah							4.85 *C7*			7.25 *C7*	
	Kansas City, Mo.	5.325 *S2*	5.325 *S2*		6.375 *S2*		7.675 *S2*					7.45 *S2*
	Los Angeles, Torrance, Cal.	5.775 *C7,B2*	5.775 *C7,B2*	8.30 *R3,P14*	7.175 *B2*	10.20 *P14*	8.125 *B2*					8.15 *B2*
	Minnequa, Colo.	5.525 *C6*	5.525 *C6*					5.70 *C6*				7.45 *C6*
	Portland, Ore.	5.825 *O2*	5.825 *O2*									
	San Francisco, Niles, Pittsburg, Cal.	5.775 *C7* 5.825 *B2* 6.025 *P9*	5.775 *C7* 5.825 *B2* 6.025 *P9*				8.175 *B2*					8.15 *C7,C6*
	Seattle, Wash.	5.825 *B2, N6*	5.825 *B2*				8.175 *B2*	5.75 *B2*		7.75 *B2*	8.15 *B2*	
SOUTH	Atlanta, Ga.	5.275 *A8*	5.275 *A8*									7.40 *A8*
	Fairfield, Ala. City, Birmingham, Ala.	5.075 *T2,R3* 5.075 *C16*	5.075 *T2,R3* 5.075 *C16*	7.45 *C16*			7.425 *T2*	4.85 *T2,R3*			7.25 *T2*	7.20 *T2,R3*
	Houston, Ft. Worth, Lone Star, Tex.	5.325 *S2*	5.325 *S2*		6.375 *S2*		7.675 *S2*	4.95 *S2* 5.20 *L3*		6.95 *S2*	7.35 *S2*	7.45 *S2*

† Merchant Quality—Special Quality .35¢ higher.

STEEL PRICES *(Effective June 1, 1957)*

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angel Nail & Chaplet Co., Cleveland.
A7 Armco Steel Corp., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A9 Acme-Newport Steel Co., Newport, Ky.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brook Plant, Wickwire Spencer Steel Div., Birdsboro, Pa.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C5 Cold Metals Products Co., Youngstown, O.
C6 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C12 Cumberland Steel Co., Cumberland, Md.
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C17 Chester Blast Furnace, Inc., Chester, Pa.

D1 Detroit Steel Corp., Detroit
D2 Dearborn Div., Sharon Steel Corp.
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire Steel Co., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.
G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.
H1 Hanna Furnace Corp., Detroit
I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp , Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.
K4 Keystone Drawn Steel Co., Spring City, Pa.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M5 Monarch Steel Div., Hammond, Ind.
M6 Mystic Iron Works, Everett, Mass.
M7 Milton Steel Products Div., Milton, Pa.
M8 Mill Strip Products Co., Evanston, Ill.

N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Northeastern Steel Corp., Bridgeport, Conn.
N9 Nelson Steel & Wire Co.

O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Stee Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.
P11 Production Steel Strip Corp., Detroit
P13 Phoenix Mfg. Co., Joliet, Ill.
P14 Pacific Tube Co.

R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 Rotary Electric Steel Co., Detroit
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Div., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw and Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamsport, Pa.
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Corp., Carnegie, Pa.
S10 Seneca Steel Service, Buffalo

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston

U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Div., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
W12 Wallace Barnes Steel Div., Bristol, Conn.

Y1 Youngstown Sheet & Tube Co., Youngstown

PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about $200 per net ton.

	BUTTWELD														SEAMLESS							
	⅛ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In		2½-3 In.		2 In.		2½ In.		3 In.		3½-4 In.	
STANDARD T. & C.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
Sparrows Pt. *B3*	7.25	+8.00	10.25	+4.00	13.75	0.50	16.25	1.25	16.75	2.25	17.25	2.75	18.75	2.50								
Youngstown *R3*	9.25	+10.00	12.25	+6.00	15.75	+1.50	18.25	0.25	18.75	1.25	19.25	1.75	20.75	2.50								
Fontana *K1*	+3.75	+19.00	+0.75	+15.00	2.75	+10.50	5.25	+9.75	5.75	+8.75	6.25	+8.25	7.75	+8.50								
Pittsburgh *J3*	9.25	+6.00	12.25	+2.00	15.75	2.50	18.25	3.25	18.75	4.25	19.25	4.75	20.75	5.25	5.25	+20.25	1.25	+16.50	3.75	+13.00	5.25	+11.50
Alton, Ill. *L1*	7.25	+8.00	10.25	+4.00	13.75	0.50	16.25	1.25	16.75	2.25	17.25	2.75	18.75	2.50								
Sharon *M3*	9.25	+10.00	12.25	+2.00	15.75	+1.50	18.25	0.25	18.75	1.25	19.25	1.75	20.75	2.50								
Fairless *N2*	7.25	+8.00	10.25	+4.00	13.75	0.50	16.25	1.25	16.75	2.25	17.25	2.75	18.75	2.50								
Pittsburgh *N1*	9.25	+6.00	12.25	+2.00	15.75	2.50	18.25	3.25	18.75	4.25	19.25	4.75	20.75	5.25	5.25	+20.25	1.25	+16.50	3.75	+13.00	5.25	+11.50
Wheeling *W5*	9.25	+6.00	12.25	+2.00	15.75	2.50	18.25	3.25	18.75	4.25	19.25	4.75	20.75	5.25								
Wheatland *W4*	9.25	+6.00	12.25	+2.00	15.75	2.50	18.25	3.25	18.75	4.25	19.25	4.75	20.75	5.25								
Youngstown *Y1*	9.25	+6.00	12.25	+2.00	15.75	2.50	18.25	3.25	18.75	4.25	19.25	4.75	20.75	5.25	5.25	+20.25	1.25	+16.50	3.75	+13.00	5.25	+11.50
Indiana Harbor *Y1*	8.25	+9.00	13.25	+2.00	14.75	1.50	17.25	2.25	17.75	3.25	18.25	3.75	19.75	4.25								
Lorain *N2*	9.25	+6.00	12.25	+2.00	15.75	2.50	18.25	3.25	18.75	4.25	19.25	4.75	20.75	5.25	5.25	+20.25	1.25	+16.50	3.75	+13.00	5.25	+11.50
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	11.75	+2.00	15.75	2.00	18.75	6.50	19.25	5.25	19.75	6.25	20.25	6.75	20.75	5.50								
Youngstown *R3*	13.75	+4.00	17.75	list	20.75	4.50	21.25	4.25	21.75	5.25	22.25	5.75	22.75	5.50								
Fairless *N2*	11.75	+2.00	15.75	2.00	18.75	6.50	19.25	5.25	19.75	6.25	20.25	6.75	20.75	5.50								
Fontana *K1*	9.75		4.75		7.75		8.25		8.75		9.25		9.75									
Pittsburgh *J3*	13.75	+2.00	17.75	4.00	20.75	8.50	21.25	7.25	21.75	8.25	22.25	8.75	22.75	7.50	3.75	+17.75	3.75	+12.00	6.25	+10.50	11.25	+5.50
Alton, Ill. *L1*	11.75	+2.00	15.75	2.00	18.75	6.50	19.25	5.25	19.75	6.25	20.25	6.75	20.75	5.50								
Sharon *M3*	13.75	+4.00	17.75	list	20.75	4.50	21.25	4.25	21.75	5.25	22.25	5.75	22.75	5.50								
Pittsburgh *N1*	13.75	+2.00	17.75	4.00	20.75	8.50	21.25	7.25	21.75	8.25	22.25	8.75	22.75	7.50	3.75	+17.75	3.75	+12.00	6.25	+10.50	11.25	+5.50
Wheeling *W5*	13.75	+2.00	17.75	4.00	20.75	8.50	21.25	7.25	21.75	8.25	22.25	8.75	22.75	7.50								
Wheatland *W4*	13.75	+2.00	17.75	4.00	20.75	8.50	21.25	7.25	21.75	8.25	22.25	8.75	22.75	7.50								
Youngstown *Y1*	13.75	+2.00	17.75	4.00	20.75	8.50	21.25	7.25	21.75	8.25	22.25	8.75	22.75	7.50	3.75	+17.75	3.75	+12.00	6.25	+10.50	11.25	+5.50
Indiana Harbor *Y1*	12.75	+1.00	16.75	3.00	19.75	7.50	20.25	6.25	20.75	7.25	21.25	7.75	21.75	6.50								
Lorain *N2*	13.75	+2.00	17.75	4.00	20.75	8.50	21.25	7.25	21.75	8.25	22.25	8.75	22.75	7.50	3.75	+17.75	3.75	+12.00	6.25	+10.50	11.25	+5.50

Threads only, buttweld and seamless 2¼ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 5½ pt. higher discount.
Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ½, ¾ and 1-in., 2 pt.; 1¼, 1½ and 2-in. 1½ pt.; 2½ and 3-in., 1 pt., e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2½ and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 11½¢ per lb.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	per lb	SAE
18	4	1	—	—	$1.68	T-1
18	4	2	—	5	2.385	T-4
18	4	1	—	—	1.185	T-2
1.5	4	1.5	8	—	1.04	M-1
6	4	3	6	—	1.43	M-3
6	4	2	5	—	1.185	M-2

High-carbon chromium	.83 D-3, D-5
Oil hardened manganese	.45 O-2
Special carbon	.41 W-1
Extra carbon	.345 W-1
Regular carbon	.29 W-1

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

CLAD STEEL

Base prices, cents per lb f.o.b.

	Cladding	Plate (A3, J2, L4) 10 pct	Plate (A3, J2, L4) 15 pct	Plate (A3, J2, L4) 20 pct	Sheet (I2) 20 pct
Stainless Type	302	.....	.....	.....	35.50
	304	36.20	40.30	44.50	37.75
	316	41.60	45.90	50.15	55.50
	321	37.95	42.10	46.40	44.75
	347	41.25	46.45	51.70	54.25
	405	29.20	33.15	37.05	.....
	410, 430	28.70	32.65	36.55	.....

CR Strip (S9) Copper, 10 pct, 2 sides, 39.85; 1 side, 33.00.

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled (Cut Lengths)*	Cold-Reduced (Coiled or Cut Length) Semi-Processed	Cold-Reduced (Coiled or Cut Length) Fully Processed
Field	9.00	9.20	.....
Armature	10.35	10.35	10.85
Elect	11.00	11.025	11.525
Motor	12.05	12.075	12.575
Dynamo	13.05	13.05	13.55
Trans. 72	14.05	14.05	14.55
Trans. 65	14.60	Grain Oriented	
Trans. 58	15.10	Trans. 80	18.50
Trans. 52	16.15	Trans. 73	19.00

Producing points: Beech Bottom (W5); Brackenridge (A3); Granite City (G2); Indiana Harbor (I3); Mansfield (E2); Newport, Ky. (N5); Niles, O. (N3); Vandergrift (U1); Warren, O. (R3) (20¢ higher, HR); Zanesville, Butler (A7).

LAKE SUPERIOR ORES

51.50% *Fe natural content, delivered lower Lake ports. Prices for 1957 season. Freight changes for seller's account.*

	Gross Ton
Openhearth lump	$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard Q Coated Nails Col	Woven Wire Fence Col	"T" Fence Posts Col	Single Loop Bale Ties Col	Galv. Barbed and Twisted Barbless Wire Col	Merch. Wire Annld ¢/lb.	Merch. Wire Galv. ¢/lb.
Alabama City R3	167	181	...	195	187	8.10	8.50
Aliquippa, Pa. J3***	164	179	...	...	181	8.20	8.875
Atlanta A8**	166	182	...	192	190	8.05	8.65
Bartonville K2**	166	182	...	198	190	8.30	9.06
Buffalo W6	...	...	...	...	...	8.20	8.75
Chicago, Ill. N4**	164	180	167	196	188	8.35	9.10
Cleveland A6	173	...	...	...	...	8.20	8.75
Cleveland A5	...	...	...	...	...	8.20	...
Crawfordsville M4**	166	182	...	198	190	8.30	9.05
Donora, Pa. A5	164	176	...	196	184	8.20	8.75
Duluth A5	164	176	167	196	184	8.20	8.75
Fairfield, Ala. T2	164	176	...	196	184	8.20	8.75
Galveston D4	189‡	...	...	...	...	...	...
Houston S2	169	181	...	195	189	8.45	9.00
Johnstown, Pa. B3**	164	180	167	...	188	8.20	8.90
Joliet, Ill. A5	164	176	...	196	184	8.20	8.75
Kokomo, Ind. C9*	166	178	...	198	186	8.30	8.85
Los Angeles B2**	...	...	...	...	...	9.15	9.90
Kansas City S2*	169	181	...	195	189	8.45	9.00
Minnequa C6†	169	181	172	201	189	8.45	9.00
Monessen P6	167	185	...	...	191	8.10	8.10
Palmer, Mass. W6	...	...	...	...	...	8.50	9.05
Pittsburg, Cal. C7	183	199	...	220	204	9.15	9.70
Rankin, Pa. A5	164	176	...	...	184	8.20	8.75
So. Chicago R3	167	181	...	195	187	8.10	8.50
S. San Francisco C6†	...	...	...	220	...	9.15	9.70
Sparrows Pt. B3**	166	...	...	198	190	8.30	9.00
Struthers, O. Y1*	...	...	...	...	...	8.20	8.85
Worcester A5	170	...	...	...	...	8.50	9.05
Williamsport, Pa. S5	...	...	175	...	...	...	...

* Zinc less than .10¢. † Plus zinc extras.
** 11-12¢ zinc. ‡ Wholesalers only.
*** .10¢ zinc.

WAREHOUSES

Metropolitan Price, dollars per 100 lb.

Cities	Cht Delivery‡ Charge	Sheets Hot-Rolled (18 ga. & hvr.)	Sheets Cold-Rolled (15 gage)	Sheets Galvanized (10 gage)††	Strip Hot-Rolled	Plates	Shapes Standard Structural	Bars Hot-Rolled (merchant)	Bars Hot-Rolled (special quality)	Bars Cold-Finished	Alloy Bars Hot-Rolled 4615 As rolled	Alloy Bars Hot-Rolled 4140 Annealed	Alloy Bars Cold-Drawn 4615 As rolled	Alloy Bars Cold-Drawn 4140 Annealed
Atlanta		8.17	9.37	9.83	8.21	8.55	8.50	8.45	.....	10.23	.....	.....	.....	.....
Baltimore	$.10	7.98	9.08	9.31	8.46	8.36	8.85	8.53	.....	9.13	14.99	14.44	18.39	18.09
Birmingham	.15	7.80	9.00	9.52	7.82	8.16	8.28	8.07	8.44	10.04-10.12	.....	.....	.....	.....
Boston	.10	8.94	9.98	11.06	8.99	9.28	9.20	9.17	9.57	.....	15.79	14.79	19.14	18.39
Buffalo	.15	8.00	9.15	10.83	8.20	8.65	8.65	8.40	8.85	8.85	15.65	14.65	19.01	18.25
Chicago	.15	7.95	9.15	9.80	7.97	8.31	8.35	8.22	8.50	8.50	15.30	14.30	18.65	17.90
Cincinnati	.15	8.09	9.20	9.80	8.29	8.67	8.89	8.53	8.87	8.99	15.61	14.61	18.96	18.21
Cleveland	.15	7.93	9.13	9.70	8.07	8.54	8.72	8.31	8.67	8.75	15.39	14.39	18.74	17.99
Denver		9.70	11.30	12.49	9.80	9.70	9.60	9.95	.....	10.65	.....	.....	.....	17.60
Detroit	.15	8.18	9.40	10.15	8.32	8.66	8.89	8.52	8.86	8.85	15.46	14.56	18.81	18.16
Houston		8.80	9.75	.....	7.75	8.80	8.00	8.05	.....	10.65	15.50	.....	19.30	19.05
Kansas City	.20	8.52	9.72	10.07	8.60	8.83	8.87	8.73	.....	9.42	15.32	14.77	18.72	18.42
Los Angeles	.10	9.20	10.90	11.35	9.25	9.75	9.25	9.10	9.30	12.20	16.45	15.60	20.30	19.70
Memphis	.15	8.42	9.22	.....	8.12	8.35	8.30	8.25	.....	9.85	.....	.....	.....	.....
Milwaukee	.15	8.08	9.28	9.93	8.10	8.44	8.56	8.35	8.71	8.72	15.43	14.43	18.78	18.03
New York	.10	8.55	9.76	10.31	9.00	9.11	9.01	9.11	9.48	.....	15.02	14.69	18.42	18.29
Norfolk	.20	8.00	.....	.....	8.40	8.35	8.70	8.45	.....	10.70	.....	.....	.....	.....
Philadelphia	.10	8.25	9.17	10.39	8.92	8.78	8.80	8.81	9.18	9.41	15.61	14.61	18.96	18.21
Pittsburgh	.15	7.93	9.14	10.15	8.07	8.31	8.35	8.22	8.59	8.75	15.30	14.30	18.65	17.90
Portland		9.20	11.20	11.55	11.05	9.00	9.35	9.35	.....	13.80	16.70	16.10	20.40	20.25
San Francisco	.10	9.05	10.40	10.90	9.05	9.30	9.15	9.15	9.90	12.40	16.45	15.60	20.30	19.70
Seattle		9.55	10.70	11.60	9.55	9.30	9.35	9.50	9.85	13.40	16.55	15.85	19.50	19.45
Spokane	.15	9.70	10.85	11.75	9.70	9.45	9.50	9.65	10.00	13.55	.....	16.75	.....	20.35
St. Louis	.15	8.29	9.49	10.16	8.34	8.67	8.82	8.58	9.11	9.11	15.66	14.66	19.01	18.26
St. Paul	.15	8.39	9.59	10.26	8.43	8.90	8.94	8.53	.....	9.21	.....	14.62	.....	18.27

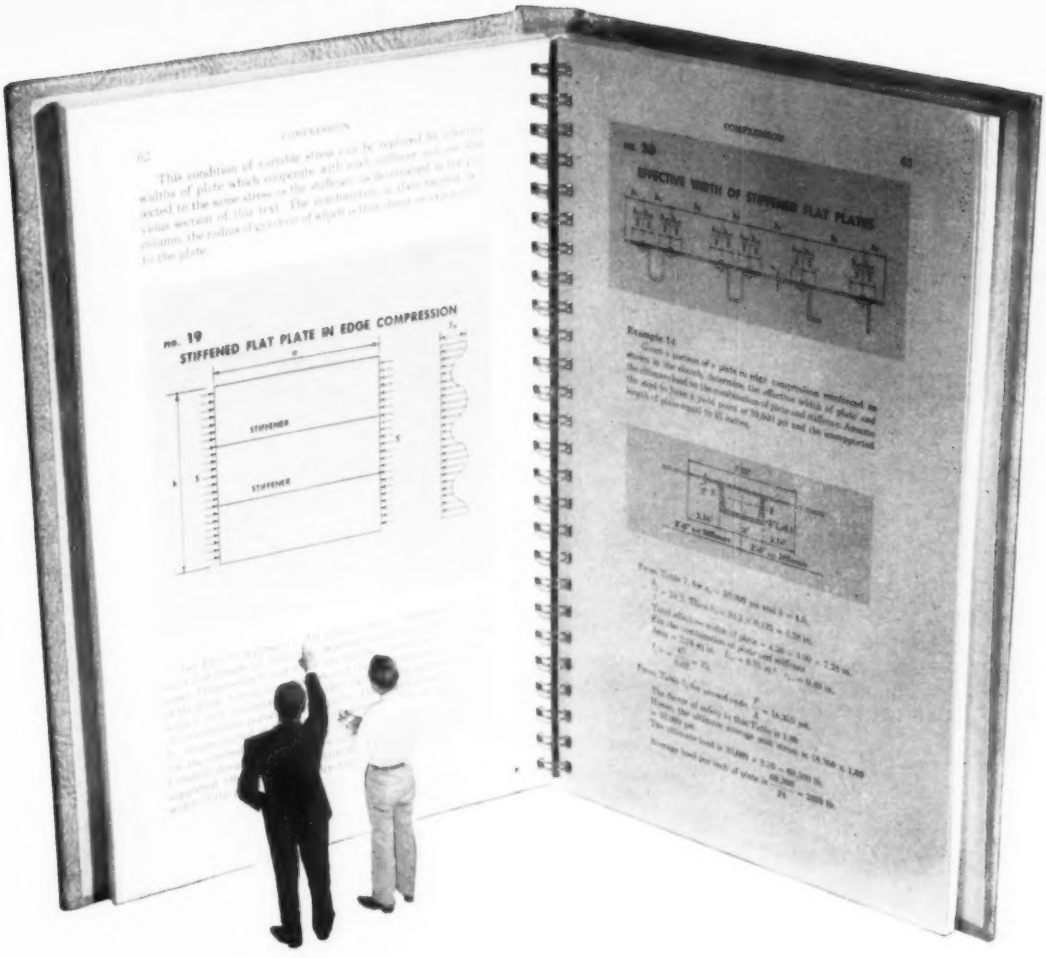
Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets for quantity.
† 16 gage. †† 13½¢ zinc. ‡ Deduct for country delivery.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT 0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Baltimore, Md. T8	9.20	10.40	12.60	15.60	18.55
Bristel, Conn. W12	.....	10.40	12.60	15.60	18.55
Boston T8	9.20	10.40	12.60	15.60	18.55
Buffalo, N. Y. R7	8.65	10.10	12.30	15.30	18.25
Carnegie, Pa. S9	8.65	10.10	12.30	15.30	.....
Cleveland A5	8.65	10.10	12.30	15.30	18.25
Detroit D1	8.75	10.20	12.40	15.40	.....
Detroit D2	8.75	10.20	12.40	.....	.....
Dover, O. G4	8.65	10.10	12.30	15.30	18.25
Evanston, Ill. M8	8.65	10.10	12.30	.....	.....
Franklin Park, Ill. T8	8.75	10.10	12.30	15.30	18.25
Harrison, N. J. C11	.....	.....	12.60	15.60	18.55
Indianapolis C5	8.80	10.25	12.30	15.30	18.25
Los Angeles	10.85	12.30	14.50	.....	.....
New Castle, Pa. B4	8.65	10.10	12.30	15.30	.....
New Haven, Conn. D1	9.10	10.40	12.60	15.60	.....
Pawtucket, R. I. N7	9.20	10.40	12.60	15.60	18.55
Pittsburgh S7	8.65	10.10	12.30	15.30	18.25
Riverdale, Ill. A1	8.75	10.10	12.30	15.30	18.25
Sharon, Pa. S1	8.65	10.10	12.30	15.30	18.25
Trenton R4	11.05	10.40	12.60	15.60	18.55
Wallingford W1	9.10	10.40	12.60	15.60	18.45
Warren, Ohio T4	8.65	10.10	12.30	15.30	18.25
Worcester, Mass. A5	9.20	10.40	12.60	15.60	18.55
Youngstown C5	8.65	10.10	12.30	15.30	18.25

BOILER TUBES

$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size OD-In.	Size B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.	Elec. Weld C.D.
Babcock & Wilcox	2	13	36.34	42.56	33.21	.....
	2½	12	48.94	57.31	44.73	.....
	3	12	56.51	66.18	51.66	.....
	3½	11	65.97	77.25	60.30	.....
	4	10	87.61	102.59	80.07	.....
National Tube	2	13	36.34	42.56	33.21	.....
	2½	12	48.94	57.31	44.73	.....
	3	12	56.51	66.18	51.66	.....
	3½	11	65.97	77.25	60.30	.....
	4	10	87.61	102.59	80.07	.....
Pittsburgh Steel	2	13	36.34	42.56	.....	.....
	2½	12	48.94	57.31	.....	.....
	3	12	56.51	66.18	.....	.....
	3½	11	65.97	77.25	.....	.....
	4	10	87.61	102.59	.....	.....



You'll find it all here . . .

The information you need when designing for high strength steels

OUR new "Design Manual for High Strength Steels" is ready for distribution. Here are 174 pages of practical, authoritative information that you will find invaluable in designing your product for greater economy and efficiency by the sound use of high strength steels. No designer should be without it.

This excellent book covers in detail the problems of tension, compression, shear, beam stress, deformation and deflection. It fully describes the fundamental characteristics of low-alloy high strength steels, shows you how to design against corrosion, describes the application of formed sections. Complete with tables, formulas, and basic data covering this important field of design.

• • •

For your free copy, write on your company letterhead, giving your title or department, to United States Steel Corporation, Room 5615, 525 William Penn Place, Pittsburgh 30, Pa.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS HIGH STRENGTH STEELS

USS MAN-TEN • USS COR-TEN • USS TRI-TEN

UNITED STATES STEEL

(Effective June 4, 1957)

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Unreamed
Bessemer *U1*	5.275	6.25	6.60				
Cleveland							13.85
So. Chicago *R3*				9.225			
Ensley *T2*	5.275	6.25					
Fairfield *T2*		6.25		9.225		6.275	
Gary *U1*	5.275					6.275	
Huntington *C16*		6.25					
Ind. Harbor *I3*	5.275		6.60	9.225		6.275	
Ind. Harbor *Y1*				9.225			
Johnstown *B3*		6.25					
Joliet *U1*			6.60				
Kansas City *S2*				9.225			13.85
Lackawanna *B3*	5.275	6.25	6.60			6.275	
Lebanon *B3*							13.85
Minnequa *C6*	5.275	6.75	6.60	9.225		6.275	13.85
Pittsburgh *P3*							13.85
Pittsburgh *J3*				9.225			
Seattle *B2*				9.725		6.425	13.85
Steelton *B3*	5.275		6.60			6.275	13.85
Struthers *Y1*				9.225			
Torrance *C7*						6.425	
Williamsport *S5*		6.15					
Youngstown *R3*				9.225			

COKE

Furnace, beehive (f.o.b. oven) Connellsville, Pa.	N 1-Ton $15.00 to $15.75
Foundry, beehive (f.o.b. oven)	$17.50 to $19.00
Foundry oven coke	
Buffalo, del'd	$31.75
Detroit, f.o.b.	30.50
New England, del'd	31.75
Kearney, N. J., f.o.b.	29.75
Philadelphia, f.o.b.	29.50
Swedeland, Pa., f.o.b.	29.50
Painesville, Ohio, f.o.b.	30.50
Erie, Pa., f.o.b.	30.50
Cleveland, del'd	32.65
Cincinnati, del'd	31.84
St. Paul, f.o.b.	29.75
St. Louis, f.o.b.	31.50
Birmingham, f.o.b.	28.85
Milwaukee, f.o.b.	30.50
Neville, Is., Pa.	29.25

ELECTRODES

Cents per lb, f.o.b. plant, threaded, with nipples, unboxed.

GRAPHITE			CARBON*		
Diam. In.	Length In.	Price	Diam. In.	Length In.	Price
24	84	24.75	40	100, 110	10.70
20	72	24.00	35	110	10.70
16 to 18	72	24.50	30	110	10.85
14	72	25.00	24	72 to 84	11.25
12	72	25.50	20	90	11.00
10	60	26.50	17	72	11.40
10	48	27.00	14	72	11.85
7	60	26.75	12	60	12.95
6	60	30.00	10	60	13.00
4	40	33.25	8	60	13.30
3	40	35.25			
2½	30	37.25			
2	24	57.75			

* Prices shown cover carbon nipples.

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, frt allowed in quantity)

Copper	
Cast elliptical, 18 in. or longer, 5000 lb lots	47.92
Electrodeposited	39.25
Brass, 80-20, ball anodes, 2000 lb or more	50.00
Zinc, ball anodes, 2000 lb lots (for elliptical add 2¢ per lb)	21.25
Nickel, 99 pct plus, rolled carbon, 5000 lb (Rolled depolarized add 3¢ per lb)	1.0225
Cadmium	1.70
Tin, ball anodes and elliptical $1.07 per in.	

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum	74.80
Copper sulphate, 100 lb bags, per cwt.	24.35
Nickel salts, single, 100 lb bags	40.50
Nickel chloride, freight allowed, 300 lb	45.50
Sodium cyanide, domestic, f.o.b. N. Y., 200 lb drums (Philadelphia price 23.30)	23.05
Zinc cyanide, 100 lb	59.00
Potassium cyanide, 100 lb drum N. Y.	48.00
Chromic acid, flake type, 100,000 lb or more	31.00

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Machine and Carriage Bolts	Pct Discounts: Full Container Price	30 Containers	20,000 Lb.	40,000 Lb.
½" and smaller x 6" and shorter	52½	56½	58½	59½
⅞" thru 1" x longer than 6"	43½	47½	50	51½
Rolled thread carriage bolts ½ in. & smaller x 6 in. and shorter	52½	56½	58½	59½
Lag, all diam. x 6" & shorter	52½	56	58	59
Lag, all diam. longer than 6 in.	44½	48	50	51
Plow bolts, ½" and smaller x 6" and shorter	52	55½	57	58

(Add 25 pct for broken case quantities)

Nuts, Hex, HP reg. & hvy.

	Full Case or Keg Price
¾ in. or smaller	61½
⅞ in. to 1 in. inclusive	57½
1⅛ in. to 1½ in. inclusive	62½
1⅝ in. and larger	56

C. P. Hex reg. & hvy.

¾ in. and smaller	61½
⅞ in. to 1½ in. inclusive	57½
1⅝ in. and larger	56

Hot Galv. Nuts (All Types)

¾ in. and smaller	48

Semi-finished Hex Nuts

¾ in. or smaller	61½
⅞ in. to 1½ in. inclusive	57½
1⅝ in. and larger	56

(Add 25 pct for broken case or keg quantities)

Finished

1 in. and smaller	64

Rivets

	Base per 100 lb
½ in. and larger	$11.50
	Pct Off List
7/16 in. and smaller	23

Cap Screws

Discount (Packages)

	Bright	Treated H. C. Heat
New std. hex head, packaged		
⅝" diam. and smaller x 6" and shorter	44	31
¾", ⅞" and 1" diam. x 6" and shorter	27	9
⅝" diam. and smaller x longer than 6"	14	+ 6
¾", ⅞" and 1" diam. & longer than 6"	½	+24

	C-1018 Steel Full-Finished Cartons	Bulk
¼" through ⅝" dia. x 6" and shorter	44	61
¾" through 1" dia. x 6" and shorter	27	49

Minimum quantity—¼" through ⅜" diam., 15,000 pieces; 1/16" through ⅝" diam., 5,000 pieces; ¾" through 1" diam., 2,000 pieces.

Machine Screws & Stove Bolts

Plain Finish		Discount Mach. Screws	Stove Bolts
Cartons		19	32
Bulk	*Quantity*		
To ¼" diam. incl.	25,000-200,000	9	54
5/16 to ½" diam. incl.	15,000-100,000	9	54
All diam. over 3" long	5,000-100,000	—	54

Machine Screw & Stove Bolt Nuts

		Discount Hex	Square
In cartons		16	19
	Quantity		
In Bulk ⅜" diam. & smaller	15,000-100,000	7	9

CAST IRON WATER PIPE INDEX

Birmingham	119.9
New York	131.7
Chicago	134.1
San Francisco-L. A.	141.8

Dec. 1955 value, Class B or heavier 6 in. or larger, bell and spigot pipe. Explanation: p. 57, Sept. 1, 1955, issue. Source: U. S. Pipe and Foundry Co.

REFRACTORIES

Fire Clay Brick

	Carloads per 1000
First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5.00)	$135.00
No. 1 Ohio	120.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	120.00
No. 2 Ohio	103.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $2.00)	21.50

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$150.00
Childs, Hays, Pa.	155.00
Chicago District	160.00
Western Utah	175.00
California	180.00
Super Duty Hays, Pa., Athens, Tex., Windham, Warren, O., Morrisville	157.00-160.00
Silica cement, net ton, bulk, Latrobe	28.50
Silica cement, net ton, bulk, Chicago	25.50
Silica cement, net ton, bulk, Ensley, Ala.	26.50
Silica cement, net ton, bulk, Mt. Union	24.50
Silica cement, net ton, bulk, Utah and Calif.	37.00

Chrome Brick

Per net ton

Standard chemically bonded, Balt.	$105.00
Standards chemically bonded, Curtiner, Calif.	115.00
Burned, Balt.	99.00

Magnesite Brick

Standard, Baltimore	$131.00
Chemically bonded, Baltimore	116.00

Grain Magnesite

St. ⅜ to ½-in. grains

Domestic, f.o.b. Baltimore in bulk	$73.00
Domestic, f.o.b. Chewalan, Wash., Luning, Nev.	
in bulk	46.00
in sacks	52.00-54.00

Dead Burned Dolomite

Per net ton

F.o.b. bulk, producing points in:	
Pa., W. Va., Ohio	$16.00
Midwest	16.35
Missouri Valley	15.00

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh

Swedish sponge iron, del. East of Miss. River, ocean bags, 23,000 lb. and over	10.5¢
F.O.B. Riverton or Camden, New Jersey, West of Miss. River	9.5¢
Domestic sponge iron, 98+% Fe, 23,000 lb. and over del'd. East of Miss. River	10.5¢
F.O.B. Riverton, New Jersey, West of Miss. River	9.5¢
Canadian sponge iron, del'd in East, carloads	9.5¢
Electrolytic iron, annealed, imported 99.5+% Fe	27.5¢
domestic 99.5+% Fe	36.5¢
Electrolytic iron, unannealed minus 325 mesh, 99+% Fe	57.0¢
Electrolytic iron melting stock, 99.84% pure	22.0¢
Carbonyl iron size 3 to 20 micron, 98%, 99.8+% Fe	88.0¢ to $2.90
Aluminum, freight allowed	38.00¢
Brass, 10 ton lots	37.4¢ to 41.5¢
Copper, electrolytic	45.75¢
Copper, reduced	49.75¢
Cadmium, 100-199 lb. 95¢ plus metal value	
Chromium, electrolytic, 99.85% min. Fe .03 max. Del'd	$5.00
Lead	8.90¢ plus metal value
Manganese f.o.b. Exton, Pa.	46.0¢
Molybdenum, 99%	$3.60 to $3.95
Nickel, unannealed	$1.00
Nickel, annealed	$1.06
Nickel, spherical, unannealed #80	$1.13
Silicon	43.50¢
Solder powder	7.0¢ to 9.0¢ plus met. value
Stainless steel, 302	$1.02
Stainless steel, 316	$1.20
Tin	14.00¢ plus metal value
Tungsten, 99% (65 mesh)	$4.00 (nominal)
Zinc, 10 ton lots	18.5¢ to 31.7¢

MUNDT

PERFORATED METALS

The few perforations illustrated are indicative of the wide variety of our line—we can *perforate almost any size perforation in any kind of metal or material required.* Send us your specifications.

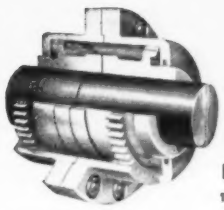
Sixty-seven years of manufacturing perforated metals for every conceivable purpose assure satisfaction.

Write for New Catalog of Patterns

TIN. STEEL. COPPER. ALUMINUM. BRONZE. BRASS. ZINC. ANY METAL. ANY PURPOSE

CHARLES MUNDT & SONS

50 FAIRMOUNT AVE. JERSEY CITY, N. J.



POOLE

FLEXIBLE COUPLINGS

ALL SIZES AND TYPES
CATALOG ON REQUEST

POOLE FOUNDRY & MACHINE CO.
1700 UNION AVE., BALTIMORE 11, MD.

*W.H.O.'s ALWAYS FIRSTEST

with the bestest precision screw machine products.
CAP SCREWS • COUPLING BOLTS
SET SCREWS • MILLED STUDS
. . . our specialty
W.H.O.

*Wm. H. Ottemiller Co. YORK, PENNA.

STEEL TUBING

SERVICE STEEL

"DAVIS" KEYSEATER

Low in Cost. Durable. Easy to operate.
Table adjustable for straight or taper keyways.
Three sizes. Keyways 1/16" up to 1".

DAVIS KEYSEATER CO.
400 Exchange St., Rochester 8, N. Y.

ARTUS

PLASTIC SLITTING MACHINE SHIMS

COST JUST A FRACTION OF METAL SPACERS

THE COLOR TELLS THE THICKNESS

ALWAYS RETAINS UNIFORMITY AND EVENNESS UNDER ALL NORMAL CONDITIONS

Save Time!
Save Money!

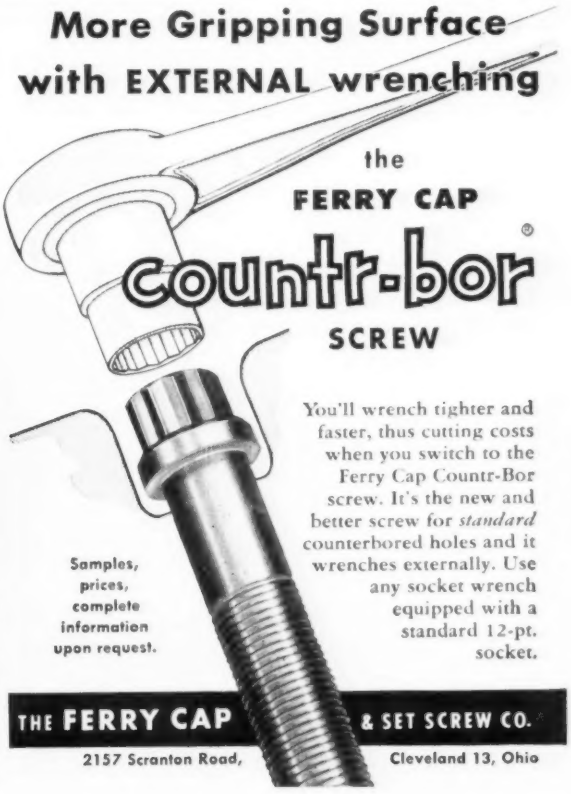
INDUSTRIAL PRODUCTS SUPPLIERS 201 South Dean Street Englewood N. J.

A. J. BOYNTON AND CO.

CONSULTING ENGINEERS
109 N. Wabash Ave., Chicago 2, Ill.

More Gripping Surface with EXTERNAL wrenching

the
FERRY CAP
Countr-bor®
SCREW



You'll wrench tighter and faster, thus cutting costs when you switch to the Ferry Cap Countr-Bor screw. It's the new and better screw for *standard* counterbored holes and it wrenches externally. Use any socket wrench equipped with a standard 12-pt. socket.

Samples, prices, complete information upon request.

THE FERRY CAP & SET SCREW CO.
2157 Scranton Road, Cleveland 13, Ohio

FERROALLOY PRICES

(Effective June 4, 1957)

Ferrochrome

Contract prices, cents per lb contained Cr, lump, bulk, carloads, del'd. 67-71% Cr, .30-4.00% max. Si.

0.02% C	41.50	0.20% C	38.50
0.03% C	41.00	0.50% C	38.25
0.06% C	39.50	1.00% C	37.50
0.10% C	39.00	1.50% C	37.35
0.15% C	38.75	2.00% C	37.25

4.00-4.50% C, 67.76% Cr, 1-2% Si 27.75
3.50-5.00% C, 57-64% Cr, 2.00-4.50% Si 27.75
0.025% C (Simplex) 34.75
0.10% C, 50-52% Cr, 2% max Si 35.50
8.50% max C, 50-55% Cr, 3-6% Si 24.00
8.50% C, 50-55% Cr, 3% max. Si 24.00

High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max 0.10% C price schedule. Add 5¢ for each additional 0.25% of N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.

0.10% max. C	$1.31
0.50% max. C	1.31
9 to 11% C, 88-91% Cr, 0.75% Fe	1.40

Electrolytic Chromium Metal

Contract prices per lb of metal 2" x D plate (⅜" thick) delivered packed, 99.80% min. Cr. (Metallic Base) Fe 0.20 max.

Carloads	$1.29
Ton lots	1.31
Less ton lots	1.33

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-45%, C 0.05% max.) Contract price, carloads, delivered, lump, 3-in. x down, per lb of Cr, packed.

Carloads	44.65
Ton lots	48.95
Less ton lots	51.45

Calcium-Silicon

Contract price per lb of alloy, lump, delivered, packed.
30-33% Ca, 60-65% Si, 3.00 max. Fe.

Carloads	25.65
Ton lots	27.95
Less ton lots	29.45

Calcium-Maganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered, packed.
16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	24.25
Ton lots	26.15
Less ton lots	27.15

SMZ

Contract prices, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh.

Ton lots	20.15
Less ton lots	21.40

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.

Carload lots	17.20
Ton lots	18.70
Less ton lots	19.95

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	18.50
Ton lots to carload packed	19.65
Less ton lots	20.90

Ferromanganese

Maximum contract base price, f.o.b., lump size, base content 74 to 76 pct Mn.

Producing Point	Cents per-lb
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	12.75
Johnstown, Pa.	12.75
Sheridan, Pa.	12.75
Philo, Ohio	12.75
S. Duquesne	12.75

Add or subtract 0.1¢ for each 1 pct Mn above or below base content.

Briquets, delivered, 66 pct Mn:

Carloads, bulk	14.80
Ton lots packed	17.20

Spiegeleisen

Contract prices, per gross ton, lump, f.o.b. Palmerton, Pa.

Manganese	Silicon	
16 to 19%	3% max.	$100.50
19 to 21%	3% max.	102.50
21 to 23%	3% max.	105.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.
95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed	45.75
Ton lots	47.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.

Carloads	34.00
Ton lots	36.00
250 to 1999 lb	38.00
Premium for Hydrogen-removed metal	0.75

Medium Carbon Ferromanganese

Mn 80 to 85%, C 1.25 to 1.50, Si 1.50% max. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn 25.50

Low-Carb Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	37.15	39.95	41.15
0.07% max. C	35.10	37.90	39.10
0.10% max. C	34.35	37.15	38.35
0.15% max. C	33.60	36.40	37.60
0.30% max. C	32.10	34.90	36.10
0.50% max. C	31.60	34.40	35.60
0.75% max. C, 80-85% Mn, 5.0-7.0% Si	28.60	31.40	32.60

Silicomanganese

Contract basis, lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢ f.o.b. shipping point.

Carloads bulk	12.80
Ton lots	14.45
Briquet contract basis carloads, bulk, delivered, per lb of briquet	15.10
Ton lots, packed	16.50

Silvery Iron (electric furnace)

Si 15.50 to 16.00 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $106.50 gross ton. freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $93.00.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, packed.

	Ton lots, packed	Carloads, packed
96.75% Si, 1.25% Fe	23.70	22.40
98% Si, 0.75% Fe	24.45	23.15

Silicon Briquets

Contract price, cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si, briquets.

Carloads, bulk	7.70
Ton lots, packed	10.50

Electric Ferrosilicon

Contract prices, cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.

50% Si	13.00	75% Si	16.40
65% Si	15.25	85% Si	18.10
	90% Si	19.50	

Ferrovanadium

50-55% V contract, basis, delivered, per pound, contained V, carloads, packed.

Openhearth	3.20
Crucible	3.30
High speed steel (Primos)	3.40

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.55

Alsifer, 20% Al, 40% Si, 40% Fe. Contract basis, f.o.b. Suspension Bridge, N. Y., per lb.

Carloads	10.65¢
Ton lots	11.80

Calcium molybdate, 43.6-46.6%, f.o.b. Langeloth, Pa., per pound Contained Mo $1.28

Ferrocolumbium, 50-50%, 2 in. x D contract basis, delivered per pound contained Cb.

Ton lots	$5.10
Less ton lots	5.15

Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, contract basis, del'd ton lots, 2-in. x D per lb con't Sb plus Ta $4.25

Ferromolybdenum, 55-75%, 200-lb containers, f.o.b. Langeloth Pa., per pound contained Mo $1.68

Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $4.00 unitage, per gross ton $90.00
10 tons to less carload $110.00

Ferrotitanium, 40% regular grade 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.50
Less ton lots $1.54

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton $240.00

Ferrotungsten, ¼ x down packed, per pounds contained W, ton lots delivered ..... $2.95 (nominal)

Molybdic oxide, briquets per lb contained Mo, f.o.b. Langeloth, Pa. $1.41
bags, f.o.b. Washington, Pa. Langeloth, Pa. $1.33

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per lb.

Carload, bulk lump	18.50¢
Ton lots, packed lump	20.50¢
Less ton lots	21.00¢

Vanadium oxide, 86-89% V_2O_5 contract, basis, per pound contained V_2O_5 ..... $1.38

Zirconium contract basis per lb of alloy

35-40% f.o.b. freight allowed, carloads, packed	27.25¢
12-15%, del'd lump, bulk-carloads	9.25¢

Boron Agents

Borosil, contract prices per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B
2000 lb carload $5.50

Bortam, f.o.b. Niagara Falls,

Ton lots per pound	45¢
Less ton lots, per pound	50¢

Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b., Suspension Bridge, N. Y., freight allowed.
Ton lots per pound ..... 14.00¢

Ferroboron, 17.50 min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, ton lots 1.20
F.o.b. Wash., Pa.,Niagara Falls, N. Y., delivered 100 lb up

10 to 14% B	.85
14 to 19%	1.20
19% min. B	1.50

Grainal, f.o.b. Bridgeville, Pa., freight, allowed, 100 lb and over

No. 1	$1.05
No. 79	50¢

Manganese - Boron, 75.00% Mn, 15.20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd.

Ton lots	$1.46
Less ton lots	1.57

Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd less ton lots $2.15

DYKEM STEEL BLUE®

Stops Losses making Dies and Templates

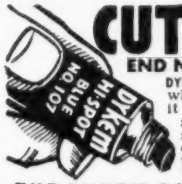
Popular package is 8-oz. can fitted with Bakelite cap holding soft-hair brush for applying right at bench; metal surface ready for layout in a few minutes. The dark blue background makes the scribed lines show up in sharp relief, prevents metal glare. Increases efficiency and accuracy.

Write for sample on company letterhead

THE DYKEM COMPANY
2303G North 11th St. • St. Louis 6, Mo.

CUT SCRAPER TIME

END NIGHT CLEANUP & MORNING REBLUING



DYKEM HI-SPOT BLUE No. 107 is used to locate high spots when scraping bearing surfaces. As it does not dry, it remains in condition on work indefinitely, saving scraper's time. Intensely blue, smooth paste spreads thin, transfers clearly. No grit; noninjurious to metal. Uniform. Available in collapsible tubes of three sizes. Order from your supplier. Write for free sample tube on company letterhead.

THE DYKEM CO., 2303G NORTH 11TH ST., ST. LOUIS 6, MO

GOSS and DE LEEUW

MULTIPLE SPINDLE

CHUCKING MACHINES

Four, Five, Six, Eight Spindles • Work and Tool Rotating Type

GOSS & DE LEEUW MACHINE CO., KENSINGTON, CONN.

more and more manufacturers are saying: "Let's use

GRIFFIN®

COLD ROLLED STRIP STEEL"

Made to your specifications in all thicknesses from .012 to .375 inches and widths from ⅛" to 19" depending upon gauge.

NARROW ROLLED ROUND EDGE STRIP STEEL *In stock at*

CENTRAL STEEL & WIRE CO.
Detroit, Chicago, Cincinnati
Wm. H. LEONORI & CO., Inc.
New York City

GRIFFIN
"since 1899"
MANUFACTURING CO. ERIE, PA.

C ELECTRIC FURNACE **ACT CAST**

STEEL CASTINGS

CARBON • ALLOY • STAINLESS

SAND OR SHELL MOLDED

"C" Steel Castings—sand or shell molded—possess qualities far more interesting than the mere strength of steel. For, in addition to strength they provide more efficient design—better weight-strength ratio—and greater fatigue resistance, i.e., longer life and less replacement. Furthermore "C" Steel Castings, because they are truly foundry engineered from pattern to final casting, require minimum machining and provide better fit plus fast assembly.

If you are interested in castings, the know-how, experience and engineering knowledge of our staff are at your service upon request.

CRUCIBLE STEEL CASTING CO.

LANSDOWNE 1, PENNA.

VICTOR R. BROWNING & CO., INC. WILLOUGHBY (Cleveland), OHIO

HOT DIP GALVANIZING

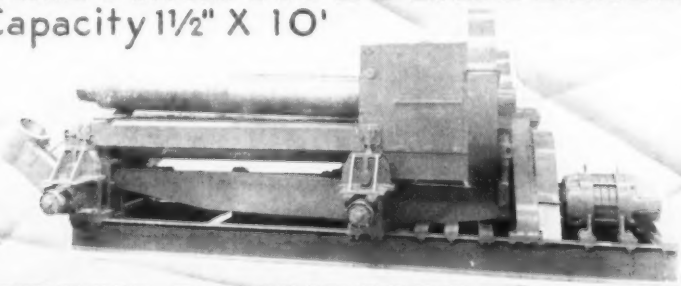
JOSEPH P. CATTIE & BROTHERS, INC.

2520 East Hagert St.

Phone: Re 9-8911 Phila. 25, Pa.

INITIAL PINCH TYPE PLATE BENDING ROLL

Capacity 1½" X 10'



Our Line

Light and heavy machinery for all classes of sheet metal, plate and structural work

BERTSCH & COMPANY, CAMBRIDGE CITY • INDIANA

RAILWAY EQUIPMENT
FOR SALE
Used - As Is - Reconditioned

RAILWAY CARS
All Types

SERVICE-TESTED
FREIGHT CAR REPAIR PARTS
For All Types of Cars

LOCOMOTIVES
Diesel, Steam, Gasoline
Diesel-Electric

WANTED
Air-Operated
Side Dump Cars
Also
Hopper
Type Ore Cars
Standard Gauge

RAILWAY TANK CARS and STORAGE TANKS
6,000- 8,000- and 10,000-Gallon
Cleaned and Tested

CRANES
Overhead and Locomotive

IRON & STEEL PRODUCTS, Inc.

General Office
13496 S. Brainard Ave.
Chicago 33, Illinois
Phone: Mitchell 6-1212

New York Office
50-B Church Street
New York 7, N. Y.
Phone: BEekman 3-8230

"ANYTHING containing IRON or STEEL"

MDNA Will Continue Fast Tax Drive

Used machinery dealers in annual convention pledge support to buyers wanting step up in depreciation rates.

Group will also expand public relations efforts and strengthen liaison with government officials.

▪ Over 225 delegates at the Machinery Dealers National Assn. annual meeting have pledged their continued support to purchasers of used machinery interested in getting the same accelerated depreciation allowances permitted buyers of new equipment.

The tool dealers announced this decision at convention sessions at Grossinger's in New York.

"The present depreciation law stimulates productivity," stated Austin D. Lucas, outgoing president of the MDNA, "but urgently requires immediate amendment to eliminate the unfair competitive burden placed on small businessmen who are required or prefer to buy used machine tools for production needs."

Tool Lease Plan Approved—At this 16th annual meeting of the group, the MDNA also vowed continued cooperation and assistance to the government in the orderly disposal of surplus property through normal channels of trade that yield the highest return to the government.

The dealers approved the government's policy of leasing machine tools to defense contractors only. They feel the expense of leasing government-owned machine tools to private business concerns is prohibitive to the taxpayer and contrary to established normal channels of trade.

A decision was made to hold an industry conference on these and related problems early this fall, probably in Washington.

Quicken the Tempo—During the meeting the MDNA also: Decided to expand its public relations program. Change its reporting of statistical data from a quarterly to a monthly basis. And establish a permanent liaison committee to meet regularly with various government officials.

The MDNA will hold its 1958 convention in Florida.

The New Team—New officers of the association for 1957-58 are: President—Elmer W. Pfeil, Elmer W. Pheil, Inc., Cleveland; First Vice President—Charles Kempler, Interstate Machinery Co., Inc., Chicago; Second Vice President—Alex Zeeve, Alex Zeeve and Co., New York; Treasurer — Richard Strom, Strom Machinery Corp., Chicago, and Immediate Past President—Austin D. Lucas, Bridgeport, Conn. R. K. Vinson continues as the group's executive director.

Directors are: Robert W. Rice, Chicago; Allen F. Price, Cleveland; Emil T. Stern, Dearborn, Mich.; R. Douglas Williams, Newark, N. J.; Victor Segal, Chicago; Arnold Bergman, Bridgeport, Conn., and Thomas J. O'Brien, Philadelphia.

Others include: A. D. Loeser, Fairfield, Conn.; Belford A. Small, Chicago; William Howarth, Detroit; Philip R. Noll, Cleveland; William Currier, North Haven, Conn.; Henry Zeisel, New York, and Harold Goldstein, Chicago.

CONSIDER GOOD USED EQUIPMENT FIRST

AIR COMPRESSOR
450 cu. ft. Ingersoll Rand XRE, 100± Pressure
100 H.P. Westinghouse Motor 110/3/60

BENDING ROLLS
10' x ½" Kling Pyramid Type—LATE
10' x ⅝" Ransome, Pyramid Type
27' x 1" Southwark, Pyramid Type

BRAKES—LEAF TYPE
8' x 3/16" Dreis & Krump
12' x ¼" Dreis & Krump
12' x ½" Dreis & Krump No. 228

BRAKES—PRESS TYPE
8' x ¼" Geo. A. Ohl
10' x 5/16" Pacific Hydraulic
14' x ¾" Superior Hydraulic—NEW

BUILDINGS
20' x 760' x 39' Under Cord
50' x 325' x 24' Under Cord

CORRUGATING MACHINE
12" Stanco Corrugating Machine, Rolls 24" Dia.

CRANES—OVERHEAD ELECTRIC TRAVELING

3 ton P&H	56' Span 220/3/60
5 ton Euclid	50' Span 220/3/60
5 ton Whiting	48' Span 220/3/60 A.C.
5 ton Case	59' Span 220/3/25
8 ton P&H	55' Span 220/3/60
10 ton Shepard Niles	27' Span 220/3/60
10 ton Shepard Niles	38' Span 440/3/60
15 ton Shepard Niles	52' Span 230 Volt D.C.
15 ton Shepard Niles	57' Span 220/440 A.C.
15 ton Shepard Niles	45' Span 220/440 A.C.
20 ton P&H	57' Span 220/440 A.C.
25 ton Cleveland	70' Span 220/3/60
	With 10 ton Auxiliary (Mill Type)

DIEING MACHINE
60-ton Henry & Wright, Roll Feed, Scrap Cutter
4" Stroke NEW 1950

FORGING MACHINES
1" to 5" Acme, Ajax, National

FURNACE—ANNEALING
Lithium Atmosphere Car Type Annealing Furnace
Heating Section 21' L. 14'6" W. 17' H Overall

HAMMERS—BROAD DROP—STEAM DROP—STEAM FORGING—800 lb to 20,000 lb.

HEADERS
#33 Waterbury Farrel Hi-Speed DS SD Capacity ½"

LEVELERS—ROLLER
32" Torrington, 19 Roll 1-31/32" Dia. Backed up
48" Aetna Standard, 17 Rolls 3⅛" Dia.
54" McKay, 17 Rolls, 3⅜" Dia.
108" Americate, 17 Rolls, 4½" Dia.

PRESSES—HYDRAULIC
200 ton Farquhar Straightening Press 18" Stroke. Working Area 12' long
800 ton Clearing, 48" Stroke, Bed 18 x 48"
4500 Baldwin-Lima-Hamilton Hydr. Forging Press

PRESSES—TOGGLE DRAWING
#3½ Bliss 125 ton, Bolster 18" x 26"
#4 Bliss 170 ton, Bed Area 34" x 51"
#1018 Bliss 1550", Die Space 60" x 72"

PRESSES—STRAIGHT SIDE
110 ton Cleveland 55D-54, 5" Stroke
Bolster 32" x 54", Air Cushion
150 ton Cleveland 65D-60, 6" Stroke
Bolster 40" x 60", Air Cushion

PUNCH & SHEAR COMBINATIONS
Cleveland Style G Single End, 60" Throat
Cleveland Style W, 60" Throat
No. 1½" Buffalo Universal Ironworker

ROLLING MILLS
6" x 5" Torrington Wire Flattening Mill Line
9" Bar Mill
10" x 14" Single Stand Two High
12" x 12" Single Stand Two High
12" x 16" Single Stand Two High
16" x 24" Farrel Two Stand Two High
26" x 72" Cold Rolling Mill
22" x 40" Three High Sheet Mill

SHEAR—ALLIGATOR
No. 4 Mesta RH LK, Capacity 2" x 12"

SHEAR—BAR
48" Mesta Bar Shear, Capacity 4" x 35" Slabs Hot. Motor Drive with 75 H.P. D.C. Motor

SHEAR—GATE
12' x ¼" Niagara Model 1212, NEW 1951

SHEAR LINES
18" x 3/16" Hallden With Coil Box, Leveler Tables
96" x 14 Ga. Cleveland With Payoff, Leveler, Inlet

SHEARS—SQUARING
6' x 10 Ga. Niagara No. 672
8' x ¼" Niagara—NEW 1952

SLITTER
36" Pasco Slitting Line

STRAIGHTENER
No. 3 Medart 3 Roll, Capacity to 4½" Tubing

SWAGING MACHINES
#1 Fenn, Capacity 2¼" Tubing, LATE
#6½A Fenn, Capacity 2¼" Tube 3¾" Solid 10" Die Length Hydraulic Feed, LATE

TESTING MACHINE
20,000# Baldwin Universal Hydraulic

TUBE MILL
Etna 1K Welded Tube Mill, Cut-off & Transformer
Caps. ½" OD 0.28 wall to 2" OD .120 wall

WIRE DRAWING MACHINE
Vaughn 4-Block 22" dia. Blocks

● Manufacturing

A. T. HENRY & COMPANY, INC.

50 CHURCH ST., NEW YORK CITY 8
Telephone COrtlandt 7-3437

Equipment ●

Confidential Certified Appraisals
Liquidations — Bona Fide Auction Sales Arranged

Consulting Engineering Service
Surplus Mfg. Equipment Inventories Purchased

CHECK THIS LIST FOR HIGH GRADE TOOLS

MISCELLANEOUS
Welder, 100 KVA Taylor Winfield
Welder, 50 KW Sciaky Dynatrol automatic, press spot
Threader, Model 11S Rickert-Shafer nipple machine
Threader, 9/16" National precision thread roll
Threader, Type R Economy threader and pointer
Slotter, 36" Rockford hydraulic vertical, late, MD
Shaper, 36" Rockford openside universal shaper-planer, mechanical
Roll, No. 1L Kane & Roach vertical bending
Roll, No. 18 Kane & Roach straightening
Planer, 30" x 30" x 8' Cincinnati, two rail, one side head
Lapper, No. 2 Cincinnati centerless, MD
Hone, No. 224-B Barnes hydraulic single spindle
Engraver, Model BL 2416 Pratt & Whitney Keller, 3 spindle
Compressor, 650 CFM Sullivan Class WJ-3 angle compound
Compressor, 390 CFM Ingersoll Rand type XRE, 2 stage
Cut-off, 6" capacity Campbell "Cutamatic" abrasive
Cut-off, No. 2A Modern automatic, late

SAWS
10½" x 10½" No. 3 Motch & Merryweather cold metal
10" x 10" Racine hydraulic shear cut
6" x 6" Peerless universal
6" x 6" No. 6 Marvel high speed

PRESSES
750 ton No. 3 National Maxi-press, all steel, forging, late
106 ton No. 78 Toledo S.C., overhanging, gap (two)
60 ton Henry & Wright high speed, dieing
50 ton Henry & Wright high speed, dieing (two)
95 ton No. 8 Bliss Consolidated OBI, MD
60 ton No. 600B Perkins, OBI
800 ton Model 2E48-800 Hamilton S.S., S.C., air clutch, late
113 ton No. 66 Bliss Consolidated S.S., tierod frame, DBG
106 ton No. 56 Toledo, S.S., S.G., tierod (three)
250 ton Williams & White 4 post hydraulic
150 ton HPM Hydro-Power Fastraverse, hydraulic
100 ton HPM Hydro-Power hydraulic
350 ton No. 18T Cleveland double action, toggle drawing, S.C.
260 ton No. 795½-72 Toledo double crank, toggle drawing
120-180 ton No. 174-S Toledo double action, toggle drawing, S.C.
200 ton No. 7 x 72" Bliss double crank s.s. tierod
126 ton Model 60D66 Cleveland s.s. double crank, tierod
600 ton No. 664 Toledo knuckle joint coining

Write For Your List No. 206

MILES MACHINERY CO.
PHONE SAGINAW PL 2-3105
2041 E. GENESEE AVE. SAGINAW, MICH.

RE-NU-BILT
GUARANTEED
ELECTRIC POWER EQUIPMENT
A. C. MOTORS
3 phase—60 cycle

SLIP RING

Qu.	H.P.	Make	Type	Volts	Speed
2	1750	G.E.	M-579BS	4800	1800
1	1500	G.E.	MT	6600	1187
1	1100	F.M.	OVZK, B.B.	4800	1800
1	800	G.E.	MT	2300	293
1	750	G.E.	MT-573	2200	1190
1	700	A.C.		2300	500
1	500	Whse.	CW	550	350
1	400	Whse.	CW	440	514
1	350	Cr.Wh.	Size 71	208/416	1765
1	350	G.E.	IM-17A	440/2200	720
1	250	G.E.	MT-424Y	4000	257
1	250	Cr.Wh.	Size 290	2300	350
1	250	Al. Ch.		550	600
1	200	G.E.	IE13 B-M	220/440	1760
1	200	G.E.	MT-557Y	220/440	1760
1	200	Cr. Wh.	20QB	440	505
1	200	G.E.	IM	440	433
3	200	G.E.	I-17AM	2200	435
1	200	G.E.	IM	2200	580
1	150(unused)	Whse.	CW	2300	435
1	125	A.C.		440	865
1	125	Al. Ch.		440	720
1	100	G.E.	IM-10	2200	435
1	100	G.E.	IM	440	600
4	100	A.C.	ANY	440	695

SQUIRREL CAGE

1	800	G.E.	KT-573	2200	1180
1	650	G.E.	FT-559BT	440	3570
3	500	Whse.	CS-1216	2200	508
3	450	Whse.	CS-1428 2300	4150	354
1	400	G.E.	IK	2200	500
1	300	G.E.	KT-559A	2300	1775
1	200	G.E.	IK-17	440	580
2	200	G.E.	KT-557	440	1800
1	150/75	G.E.	IK	440	900/450
1	150	Whse.	CS856S	410	889
1	150	Whse.	CS	440	580

SYNCHRONOUS

Qu.	H.P.	Make	Types	Volts	RPM
1	7000	G.E.	ATI	2200/6600	600
1	4350	C.W.	3501SL1000	6900/13800	514
1	2850	Whse.	Sp.f	2300/4600	514
1	2800	Whse.	Sp.f	2300	720
1	2000	Whse.		2300	120
2	1750	G.E.	ATI	2300	3600
1	735	G.E.	ATI	2200/12000	600
1	450	Whse.		2200	128.5
1	325	G.E.	ATI	440	1800
1	225	G.E.	ATI	440	1800
1	100	G.E.	TS-7556	220/440	900

BELYEA COMPANY, INC.
47 Howell Street, Jersey City 6, N. J.

REBUILT — GUARANTEED ELECTRICAL EQUIPMENT

COMPLETE PACKAGE MILL DRIVE IN STOCK
(1)—800-HP., Whse. motor, 168 R.P.M., 710 VDC, sep. excited fields
(1)—720/850-KW Whse. M-G Set, 600/710 VDC Diff. Comp. driven by a synchronous motor 900 R.P.M., 4000-2300-volt, 3 phase, 60 cycle
(1)—Starting panel for syn. motor
(1)—4 unit exciter set
(1)—Set of variable voltage control

IDEAL REEL DRIVES
(2)—600-HP Allis-Chalmers mill motors, 600-VDC, 300/600 R.P.M., with a 1200-KW, 600-VDC Westinghouse M-G Set, 1750-HP synchronous motor, 4160-2300-Volt, 3 phase, 60 cycle
(2)—275-HP Westinghouse mill type motors, 250-Volt, 425/850 R.P.M., with 2 or 3-unit, 600-KW M-G Set, 250-VDC and 900-HP synchronous motor, 2300-Volt, 3 phase, 60 cycle

SPECIAL
1150-KW double armature Whse. Generator, 600 VDC, 900 R.P.M., separate excited fields, with 2250 HP. syn. motor, 2300/4000 volt, 3 phase, 60 cycle

MOTOR GENERATOR SETS

Qu.	KW	Make	RPM	D.C. Volts	A.C. Volts
5	1500	Al. Ch.	514	350/700	13800/6900/4160
1	1500	G.E.	514	250	2300/4000
1	1450	Whse.	900	600	2300/4000
2	1250	Al. Ch.	720	600	2300/4000
1	850	G.E.	720	240/350	2300
1	725	Whse.	900	600	2300/4000
1	500	Cr. Wh.	720	600	2300/440
1	500	G.E.	900	250	2300
4	300	Whse.	1200	125/250	2300
1	300 (3-unit)	Al. Ch.	1200	250/300	2300
2	200	Whse.	1200	125/250	2300/440
2	150	Rel.	1200	125	2300/440
1	150	Whse.	1200	125/250	2300/440
1	150	G.E.	1200	250	4600/2300
1	100	Whse.	720	125/250	220
1	75	Whse.	1200	125/250	2300

T. B. MAC CABE COMPANY
4302 Clarissa St., Philadelphia 40, Penna.
Cable Address "Macsteel" Philadelphia, Pa.
Phone Davenport 4-8300

Cinn. No. 5-90 x 4' Press Brake, New.
Hardinge Chuckers, Model HCT, older.
J & L 14" Comparator, 30" table.
Cinn. No. 2510 x 10' Shear, 1937.

D. E. DONY MACHINERY CO.
4357 St. Paul Blvd. Rochester 17, N. Y.

BENNETT MACHINERY CO.
NEW BATH PRESS BRAKES

10' x ¼"	No. 150-10,	150 ton,	12' bed
10' x 3/16"	No. 120-10,	120 ton,	12' bed
10' x 8 ga	No. 100-10,	100 ton,	12' bed

375 Allwood Rd., Clifton, New Jersey
Phone PRescott 9-8994 N. Y. Phone LOngacre 3-1222

6' x 10 ga. Parker Power squaring shear, 1947, M.D.
No. ½, No. 1½ Buffalo Forge Univ. Ironworkers, Coper, Notcher, M.D.

FALK MACHINERY COMPANY
16 Ward St. Baker 5887 Rochester 5, N. Y.

CALL Curry! FOR SURPLUS STEEL PLANT EQUIPMENT

AVAILABLE EQUIPMENT

1—**Propane Gas Plant, 60,000 Gallons Storage Capacity,** complete with Pumps, Valves, Heat Exchangers, etc.

1—**Steel Frame Building, 145 ft. Wide x 1,060 ft. Long, 2 Bays,** complete with Six 10 Ton DC Cranes.

1—**36" Wean Slitting Line**—Capacity 5 Cuts in 3/16" Material, complete with Uncoiler, Slitter, Recoiler, and Misc. Spare Parts—New 1946.

Write for the Curry List of available steel plant equipment

1—2000 **H.P., G.E. Slip Ring Motor** for 3 Phase, 60 Cycle, 2200 Volt Current @ 237 RPM, complete with Controls.

1—2000 **H.P. Mesta Gear Reduction Unit** Ratio 10 to 1.

ALBERT Curry & CO. INC.
STEEL PLANT EQUIPMENT
941 OLIVER BUILDING · PITTSBURGH 22, PENNA.
Phone ATlantic 1-1370

1—**12" 3-Stand 3-Hi United Bar Mill**—Top and Bottom Screw, complete with Pinion Stand and driven by 750 H.P. Motor, 230 Volt DC.

1—**144" x 3/16" Stamco Power Squaring Shear,** complete with Holddown.

1—**40 Ton Morgan Ladle Crane,** 50 ft. Span, DC Current.

1—**#4 United Sheet Bar Shear, 26" Knives,** complete with 30 H.P. DC Motor and Tables.

1—**500 H.P. Mill Drive,** consisting of a 500 H.P. G.E. Synchronous Motor 327 RPM, and a 500 H.P. Farrell Birmingham Reducer, Ratio 10 to 1.

Cable Address: CURMILL-PITTSBURGH

2000# Chambersburg Pneumatic Forging Hammer Late Type, Serial 20CH392L7.
4000 lb. Chambersburg Double Frame Steam Forg. Hammer
2500 lb. Erie Single Leg Steam Forg. Hammer
No. 7 Ajax Forging Press, 700-ton capacity
3—2-ton Denison Auto. Hopper Feed & Index Table Hydr. Multipress
25 Transformer and Generating Arc Welders
2500 lb. Model E Chambersburg Steam Drop Hammer, New 1944
6' x 10 ga. Cincinnati Squaring Shear
¼" x 8' P. & W. Gate Shear; 20" throat
4" National High Duty Upsetting & Forging Machine, air clutch, also one with regular clutch, also 1", 2", 3" air clutch
Williams White Bulldozers from 5-ton to 300-ton
Landis Landmaco and other Landis Threading Machines
Single & Double End Punches
No. 3 Motch & Merryweather Saw, with Saw Grinder
Conomatic, 8 Spin. Cap. 1⅝" Rd.
Conomatic, 4 Spin. Cap. 1½" Rd.

BOLT, NUT AND RIVET MACHINERY, COLD HEADERS, THREAD ROLLERS, THREADING MACHINES, TAPPERS, COLD BOLT TRIMMERS, SLOTTERS, HOT HEADERS AND TRIMMERS, COLD AND HOT PUNCH NUT MACHINES.

DONAHUE STEEL PRODUCTS CO.
1919 W. 74th Street, Chicago 36, Ill.

#300 Hanchett Vertical Surface Grinder Serial #300-17 capacity 13" x 72".

Cleveland Punch and Shear Model ER-34" throat.

No. 47 Heald Single End Boorematic Serial #4646.

Late Type 4" Bar Sellers Heavy Duty Table Type Horizontal Boring Mill Serial No. 1318.

25" x 96" Landis "C," 1943 Cylindrical Grinder Serial #27527.

Hazard Brownell Machine Tools, Inc.
350 Waterman St. Providence 6, R. I.
Dexter 1-8880

BROWNING CRANE

Browning Electric Locomotive Crane, Serial 2328, 55 foot boom, eight wheel, maximum safe load with outriggers 39,000 lbs.

AJAX STEEL & FORGE CO.
205 Adair St., Detroit 7, Mich.
Lorain 7-0755

COMPRESSOR DIRECTORY
World's Best Rebuilts

12.7 CFM	500-1000 psi	Ing. 4½x5
20.5 CFM	3500 psi	Ing. 30
25 CFM	2000 psi	Ing. 3321E
30 CFM	1500 psi	Ing. 30T
48.6 CFM	3500 psi	Ing. (3) stage
118 CFM	100 psi	7 x 7 Ing. ES-1
184 CFM	135 psi	8 x 9 Chic. T
234 CFM	100 psi	9 x 9 Worth. HB
268 CFM	500 psi	10-4¼ x 10 Ing. XOB
368 CFM	100 psi	12 x 10 Ing.-Penn.
420 CFM	40 psi	12 x 9 Ing. ES (2) New
465 CFM	100 psi	12 x 11 Worth. HB
502 CFM	125 psi	12 x 13 Chic. T
552 CFM	100 psi	13-8 x 12 Ing. XRB
868 CFM	100 psi	17-10 x 12 Chic. OCE
877 CFM	100 psi	17-10½ x 14 Ing. XRB

PORTABLES—60-600 CFM Rotary or reciprocating.

AMERICAN AIR COMPRESSOR CORP.
DELL & 18TH STREET
NORTH JERGEN, N. J.
Telephone UNion 5-4848

FOR SALE
COMPLETE BAR & ROD ROLLING MILL IMMEDIATELY AVAILABLE

Suitable for Rolling Steel or Copper billets down to bar or rod sizes, including hotbed, shears, and rod coiler.

STILL SET-UP, REASONABLY PRICED FOR IMMEDIATE SALE

NATIONAL MACHINERY EXCHANGE
126 Mott St. New York 13, N. Y.
CAnal 6-2470

CONVEYOR FURNACES

2—Holcroft Electric Processing Furnaces, 24" Roller Conveyor type, 76' long, 2000°F with 25 KVA Transformers, Reactors, Control Panels, etc. Excellent Condition. Built 1947. Attractively Priced.

BRILL EQUIPMENT CO.
2401 Third Ave., New York 51, N. Y.
Tel: CYpress 2-5703

OVERHEAD CRANES & HOISTS

120-ton Morgan 65' span, 2—60-ton trolleys, 230 VDC.
15-ton Whiting 50' span, 440/3/60 cy.
10-ton Shepard, 39'9" span, 220/3/60 cy. push button floor controlled.
10-ton Morgan, 40' span, 230 VDC.
100 other cranes various spans and current.

JAMES P. ARMEL, Crane Specialist
710 House Bldg. Pittsburgh 2, Pa.
Tele. GR 1-4449

SMALL 2HI COLD ROLLING MILLS

8" dia by 8" f Standard, Roller Bgs. 15 HP
6" dia by 5" f Standard, Grading Mill, 10 HP
5" dia by 8" f Standard, Roller Bgs. 7½ HP
3" dia by 5" f Ruesch, Bz Bgs, 3 HP "V" Belt
4" dia by 2¼ f Buffalo, Bz Bgs, Flat Wire
Also 12", 18" & 20" 2HI Cold Mills.

F. H. CRAWFORD & COMPANY, INC.
30 Church Street New York 7, N. Y.

STEEL FABRICATING EQUIPMENT CLOSE-OUT

Gulbert Portable Toggle Bug Drill, 1½" capacity, 220V A.C.—$700.00. Beaver Model A Pipe & Bolt Threader—$225.00. Diamond Surface Grinder, 10" x 32", Magnetic Chuck—$450.00. Cleveland 2 H Horizontal Milling Machine with Vertical Head—$500.00.

J. M. KULKA COMPANY
Alliance, Ohio Phone 6255

OFFERING
BRIDGE CRANES
ARNOLD HUGHES COMPANY
2765 Penobscot Bldg. Detroit, Mich.
WOodward 1-1894

BENKART STEEL & SUPPLY COMPANY
CORAOPOLIS, PENNSYLVANIA
AMherst 4-1250

Dealers in new and used OET Cranes and Structural Steel Buildings.
Send us your inquiries.

M-G SETS & MILL MOTORS

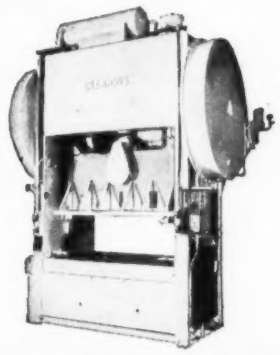
3500 KW Allis 250/700 v.—13800/6900, 3/60
1500 KW G.E. 250 volt—4000/2300, 3/60
360 KW G.E. 250 volt—4000/2300/440, 3/60
300 KW West. 250 volt—2300/440, 3/60
Also 50-75-100-150-200 KW, M. G. Sets in stock.
A. C. & D. C. Motors up to 2000 H. P. in stock.

MOORHEAD Elec. Mach'y Co.
Oakdale, Pa. Ownes 3-6401
(Pittsburgh District) Wa. 1-4300

WORLD'S LARGEST STOCK

STAMPING PRESSES

BLISS • CLEARING • CLEVELAND
FERRACUTE • HAMILTON • L & J
NIAGARA • TOLEDO • V & O

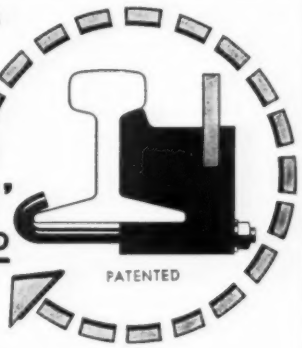


SQUARING SHEARS • PRESS BRAKES
REBUILT *and* GUARANTEED

JOSEPH HYMAN & SONS
TIOGA, LIVINGSTON & ALMOND STS.
PHILADELPHIA 34, PA. *Phone GArfield 3-8700*

For the Smoothest Paved Areas over Railroad Tracks . . .

Use **KASLE**
IMPROVED
"Guardmaster"
FLANGEWAY CROSSING GUARD



Smooth Durable Crossings — Low Installation and Maintenance Cost. Write today for Brochure.

TRACKWORK of ALL KINDS

Rails of all sizes, Splice Bars, Bolts, Spikes, Tie Plates, Frog and Switch Materials, Tools, etc. Railroad Track Material inquiries invited.

KASLE STEEL CORPORATION

P. O. Box 536 • Detroit 32, Michigan • TIffany 6-4200

TOTAL OF 17,500-KW IN M.G. SETS

5—3500-KW, 3 Unit, Allis-Chalmers, Motor Generator Sets. Each consisting of:
2—1750-KW, 250/350 Volts parallel, 500/700 Volts series, 514 RPM, 5000 Amp., type HCC, rated continuous at 40 Deg. C. Allis-Chalmers DC Generators with Class B Insulation, separately excited, direct connected in the center to:
1—5000-H, 3730-KW, 13800 Volts (6900 Volts), 3 Phase, 60 cycle, 514 RPM, 162 Amps., Allis-Chalmers, Synchronous Motor with Class B Insulation, rated continuous at 40 Deg. C. Rise.
Each set equipped with a 40-KW exciter for synchronous motor fields, and a 10-KW exciter for generator fields, both 250-VDC at 514 RPM.
All mounted on a structural steel base approximately 27' long x 11' wide.
These Units are of the very latest type and design—condition excellent—were used only a short time—AC and DC Switchgear available. For any additional information and price, please contact one of the following dealers closest to you:

T. B. MacCabe Company
4300 Clarissa Street, Philadelphia 40, Pa.
Moorehead Electrical Machinery Co.
120 Noblestown Road, Oakdale (Pittsburgh District), Pennsylvania
Brazos Engineering Co., Inc.
P. O. Box 9114, Houston, Texas
Duquesne Electric & Mfg. Co.
6428 Hamilton Avenue, Pittsburgh 6, Pa.

PUBLIC AUCTION

June 12th—3:30 PM D.S.T.

14 miles of Railroad and Parts. Sale on the premises—office of Arcade & Attica R.R. — Arcade NY. All material will be loaded without charge and shipped F.O.B. Varysburg, N. Y.

Matthew J. Anderson—Mo. 2050—Buffalo, N. Y.

PRESSES

#506 BLISS, S.S.S.C., Tie Rod, Eccentric Shaft, 6" stroke, air cushion, M.D.
#650 BLISS, S.S.S.C., Hi-Speed, Tie Rod, Flywheel, 2" stroke, roll feed, scrap cutter, automatic oiling, M.D.
#30C-24 CLEVELAND, Double Crank, Gap Frame, Flywheel, 5" stroke, automatic oiling, M.D.

POWER PRESS SPECIALISTS
471 North 5th St. Phila. 23, Pa.

LIFTING MAGNETS

A complete magnet service. Magnets, new & rebuilt, generators, controllers, reels, etc.

Magnet specialists since 1910

Goodman Electric Machinery Co.
1060 Broad St. Newark 2, N. J.

UNIVERSAL

MACHINERY & EQUIPMENT CO.

MELTING FURNACES
3 KW AJAX Spark Gap Converter
20 KW AJAX Spark Gap Melting Unit
250 lb LECTROMELT Arc Melting Furnace
1½ Ton LECTROMELT Arc Melting Furnace
2 Ton LECTROMELT, Size Q, Arc Melting Furnace
1500 lb HEROULT Arc Melting Furnace

HEAT TREAT FURNACES
DESPATCH pit-type gas hi-temperature hardening furnace
200 KW TOCCO Induction Heater
1—Gas Fired, 5' 6" x 8' I.D. Pit
1—L&N, 75 KW, 25" x 48" Electric Pit

CLEANING EQUIPMENT
15" Cont. AMERICAN Tumblast, 4 tons per hour
36" Cont. AMERICAN Tumblast, 15 tons per hour
48 x 42 WHEELABRATOR w skip loader
48 x 48 WHEELABRATOR w skip loader
PANGBORN Tablast 8' diameter
PANGBORN Shot Blast Machine, 5 Wheel Type

Large Stock of Detroit Melting Furnaces
AMERICA'S LARGEST STOCK OF FOUNDRY EQUIPMENT

1630 N. NINTH ST., READING, PA.
Phone: Reading 3-5103

STEEL SHEET PILING
1500 pcs. BETH. SP-6A—35', 40', 60' & 65'
900 pcs. CARNEGIE M-116—30', 40' & 50'
288 pcs. BETH. ZP-32—48' & 62'
317 pcs. BETH. AP-3—20', 28' & 42'
240 pcs. BETH. BP-12—53 lb. 55'

DIESEL LOCOMOTIVE
7—25, 44 & 65 TON GEN. ELEC.

4—1000 CFM AIR COMPRESSORS
4 1000 CFM INGER-RAND TWIN 90-90C TYPE 40 AIR COOLED NEW 1953 USED 6 MONTHS, EACH WITH 200 HP 3P 60C 440V DIRECT COUPLED MOTOR.

R. C. STANHOPE, INC.
60 E. 42nd St. New York 17, N. Y.

Naval Bronze, Phosphor Bronze & Underwater Electrodes for Sale, Quantity & Cheap.

APPALACHIAN STEEL CORP.
Lyndhurst, N. J. Ge-8-7070

GAUGE & RUN OUT TABLE

Complete with all controls
Will cut 6" min. 72" max.

Great Lakes Wholesale Supply Co.
5100 Stanton, Detroit 8, Mich.

BAR SHEAR—OPEN END

NO. 4 ROLL & MACHINE
13" Knives
Capacity 4½" Square

IN STOCK—
IMMEDIATE DELIVERY

LANG MACHINERY CO., INC.
28th St. & A.V.R.R. Pittsburgh 22, Pa.

FOR SALE--

R.R. EQUIPMENT

Immediate Delivery

- **REPAIRED**
- **REBUILT**
- **or "AS IS"**

All work on cars executed in our modern and well-equipped plant at Landisville (Lancaster County), Pennsylvania.

RAIL & INDUSTRIAL EQUIPMENT CO., Inc.

30 Church Street, NEW YORK 7, N. Y. — RR Yard & Shops, LANDISVILLE, PA

eastern Rebuilt Machine Tools

THE SIGN OF QUALITY—THE MARK OF DEPENDABILITY

GEAR TESTERS
Type 8M Fellows Red Liner, m.d.
FPV-60 Maag Gear Wheel Co. Profile Testing Instrument
12" National Broach & Machine Co.
18" National Broach & Machine Co.
18" Gleason Bevel Gear Tester, m.d.
No. 471 Michigan Tool Co. Hob, Reamer & Gear Checker
National Broach & Machine Co. "Red Ring" Universal Gear Checker

AUTOMOTIVE GRINDERS
No. 76 Van Norman Automatic Piston Turning & Grinding Machine, m.d.
Kwik-Way Model H Piston Turning & Grinding Machine, m.d.

CENTERLESS GRINDERS
No. 2 Cincinnati, m.d.

CARBIDE GRINDERS
#49 Excello H.D. Carbide Grinder, m.d.

CRANKSHAFT GRINDERS
18x66" Landis Universal Type C, m.d., late
22x72" Landis Type CH, m.d., late

CYLINDER GRINDERS
No. 73 Heald Airplane Cylinder Grinder, m.d., new
Model FG Micro Cylinder Grinder, m.d.
No. 50 Heald, m.d., 1944

KEYSEATERS
No. 3 Niles Cotter & Keyseat Milling Machine, m.d.
Morton, m.d., thru reversing gear box

DISC GRINDERS
No. 151 Besly, m.d.
No. 4 Gardner Disc Grinder, m.d.
7½ H.P. U.S. Elec. Tool Co., m.d., new
14A Gardner, m.d.
No. 186—36" cap. Gardner, m.d., latest
No. 121 Hanchett Prod. Face Grinder, m.d.
No. 124 Mattison Auto. Stroke Grinding & Polishing Machine, m.d.

UNIVERSAL GRINDERS
10x24" Landis Type C, m.d.
12x48" Norton, m.d., latest
14"x48" Landis Universal
14"x36" Norton, m.d.
18x66" Landis, m.d., Type C

We carry an average stock of 2,000 machines in our 11 acre plant at Cincinnati. Visitors welcome at all times.

THE EASTERN MACHINERY COMPANY
1002 Tennessee Avenue, Cincinnati 29, Ohio
MElrose 1241 "TWX" CI 174 — CABLE ADDRESS—EMCO

FOR SALE OR LEASE

SMELTER, ELECTRIC FURNACE, IRON or STEEL FOUNDRY

50,000 Square Foot—Heated, Sprinkled Foundry Building on C & O Trackage.
2—Moore Lectromelt "Q"—4000# Per Hour Furnaces
1—Moore Lectromelt "S"—1000# Per Hour Furnace
3—Detroit Electric Rocking Furnaces—350# & 350# & 750# Per Hour
Electric Power Wiring—Natural Gas — Location—Muskegon, Michigan

WRITE • WIRE • PHONE

ACME EQUIPMENT CO., INC.
126 South Clinton Street — Chicago 6, Illinois — ANdover 3-3430

GOOD *Quality* TOOLS

10" Model EE and 12" Model C MONARCH Toolmaker's Lathes
Nos. 3 and 5 JONES & LAMSON Ram Type Universal Turret Lathes
16" x 16" x 48" THOMPSON Type C Hydraulic Surface Grinder
400 ton BLISS Knuckle Joint Presses, new 1949
24" x 24" x 6' GRAY D. H. Planers, 2 heads, M.D. Late

WIGGLESWORTH INDUSTRIAL CORPORATION
62 Border Street — E. Boston, Mass.

FOR SALE

1—PRATT & WHITNEY 22" Vertical Surface Grinder with 19 x 90 Magnetic Chuck
1—3" LUCAS Horizontal Boring Mill 60" Height with 7½ H.P. AC Varidrive
1—BULLARD Manutrol Table 20" x 30" complete with Rods
1—Oilgear Horizontal Broach 54" Stroke, 900 lbs. P.S.I.
1—DOALL 26V Band Saw, complete

MORTON MACHINERY INC.
45 Broadway — Brooklyn 11, N. Y.
EVergreen 4-0380-1

FOR SALE

STAINLESS STEEL COLD DRAWN ROD

19,000 LBS. UNIVERSAL CYCLOPS
Type 430—7/16" WIDE X .100" THICK X 111" LONG
IN ORIGINAL BOXES
COST 55¢ LB.
WILL SELL FOR 25¢ LB.
FOR IMMEDIATE DISPOSAL
CALL
GENE FRAZIER
Globe American Corp.
KOKOMO, INDIANA

Save on Your INDUSTRIAL TRACK

FOSTER *QUALITY* — FULLY GUARANTEED

RELAYING RAILS

Handle more cars better—cost less to install and maintain. Foster stocks all Rail Sections 12# thru 175#, Switch Material and Track Accessories.

SEND FOR CATALOGS

RAILS • TRACK EQUIPMENT - PIPE - PILING
L.B. FOSTER CO.
PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4
ATLANTA 8 • HOUSTON 2 • LOS ANGELES 5

BEST BUY OF THE WEEK!

KLING #250 Circle Shear and Flanger. Capacity 84" x ¼". New—1948

STROM MACHINERY CORP.
1826 Summer St., Hammond, Ind.

For Re-erection
MODERN STEEL FRAME BUILDING

48'x220' (45' to eave) with craneway in excellent condition. Built 1947. Print and photo on request.

The Cuyahoga Wrecking Co.
19500 Allan Rd. — Melvindale, Mich.
DUnkirk 2-5397

MACHINES FOR YOUR YARD

Int. TD-14 with bulldozer
Hough HE ¾ yd. loader
Bay City 25 hoe and crane
B-G #358 car unloader
Clayton Kerrick steam cleaner
Generators for magnet cranes

TRACTOR & EQUIPMENT CO.
10006 Southwest Highway, Oak Lawn, Ill.

FOR SALE

25 ton Ohio Diesel Locomotive Crane. New 1947. Caterpillar D-13000 Engine. Excellent Condition.

35 ton Ind. Brownhoist Diesel Locomotive Crane. New 1943. Caterpillar D-13000 Engine. 15 KW Magnet Generator. Excellent.

50 ton Whitcomb Diesel Electric Locomotive 300 HP Cummins Engines. New 1943. Reconditioned.

65 ton Atlas Diesel Electric Locomotive 400 HP Cummins Engine. New 1942. Reconditioned.

115 ton Alco Diesel Electric Locomotive 1000 HP. New 1941.

Mississippi Valley Equipment Co.
501 Locust St. St. Louis 1, Mo.

Railroad Freight Cars — Gondola, Box and Flat Cars. Tank Car Tanks — 8000 gallon. Steam Locomotive Crane. Rails.

Consolidated Ry. Equipment Co.
6702 So. Cicero Ave., Chicago 38, Ill.

Keep 'em rolling . . . not rusting

FOR SALE

New—Used—Reconditioned railroad freight cars • car parts • locomotives • tank cars • steel storage tanks

MARSHALL RAILWAY EQUIPMENT Corporation
328 Connell Building, Scranton 3, Pennsylvania
Diamond 3-1117 Cable MARAILQUIP

New **RAILS** Relaying

We carry frogs, switches, spikes and bolts in stock and most all sections of rails and track accessories.

M. K. FRANK
480 Lexington Ave., New York, N. Y.
Park Building, Pittsburgh, Pa.
105 Lake St., Reno, Nevada

CRANES

BOUGHT & SOLD

ENGINEERED TO YOUR REQUIREMENTS

Ornitz Equipment Corp.
Industrial Engineering Service
220 3rd Ave. Brooklyn 17, N. Y.
TRiangle 5-2553

FOR SALE

FREIGHT CAR REPAIR PARTS
RELAYING RAILS & ACCESSORIES
STEEL STORAGE TANKS
FRT. CARS & LOCOMOTIVES
CONTRACTOR EQUIP. & MACHINERY

THE PURDY CO.
8754 S. DOBSON AVE.
CHICAGO 19, ILL. — BA 1-2100
ALSO ST. LOUIS, MO., SAN FRAN. AND LONG BEACH, CALIF.

Want to clean house?

Use The Clearing House

CONTRACT MANUFACTURING

STANDARDIZE WITH **STANDARD**

MADE TO YOUR SPECIFICATION

STEEL TUBING

CARBON • ALLOY AND STAINLESS
SEAMLESS OR WELDED
PRESSURE AND MECHANICAL
MILL OR WAREHOUSE QUANTITIES

STANDARD TUBE SALES CORP.
76-01 WOODHAVEN BLVD. • BROOKLYN 27, N. Y.

Nepsco

NEW ENGLAND PRESSED STEEL COMPANY

Contract Manufacturer since 1914

METAL STAMPINGS
SPECIALTIES — APPLIANCES

For Industrial and Domestic Users

P. O. BOX 29
NATICK MASSACHUSETTS

New process . . .

Coats Metal Parts with NYLON

NO BRIDGING, RUNS OR PIN HOLES

Now, through a revolutionary process, a wide variety of plastic coatings can be applied in powder form to virtually any surface. Nylon and polyethylene can at last be applied as a satisfactory coating and epoxies, butyrates and chlorinated polyesters are also available. Atlas custom coating can provide the necessary physical and chemical characteristics in a protective covering to meet your requirements. Write Atlas today.

The Atlas Mineral Products Co.
17 Norman Street Mertztown, Pa.

CARCO INDUSTRIES, INC.

DROP FORGINGS

for prompt attention phone John Bello
DEvonshire 2-1200
Philadelphia 35, Pa.

Let us quote on
STAMPINGS and ASSEMBLIES
from drawing or sample

Drilling . . . Blanking . . . Riveting . . . Forming . . . Tapping . . . Welding . . . Toolmaking of course

COMPLETE DESIGN AND DEVELOPMENT FACILITIES

HUEBEL MFG. CO., INC.
763 Lexington Ave. Kenilworth, N. J.

DIE CASTINGS • ALUMINUM ZINC

Our aim is to help our customers improve their products and lower their costs.

PROMPT QUOTATIONS FROM PRINT OR SAMPLE

PEASLEY PRODUCTS, INC.
990 HONEYSPOT ROAD, STRATFORD, CONN.

MEEHANITE® and NI-HARD CASTINGS

▼

PATTERNS

▼

MACHINE and PLATE SHOP WORK

▼

CUSTOM-BUILT MACHINERY

HARDINGE MANUFACTURING CO.
240 ARCH ST., YORK, PA.

TOOL AND DIE WORK

MANUFACTURING FABRICATION
METAL STAMPINGS OF ALL KINDS
PRODUCT DESIGN AND DEVELOPMENT

HARRISBURG TOOL & MANUFACTURING CO.
1833 N. 3rd Street Harrisburg, Pa.

SPECIAL MACHINERY

DIAMITE *Abrasive Resistant* Castings
NI-RESIST *Heat & Corrosion Resistant* Castings
P M G BRONZE *High Strength Acid Resistant* Castings

Fully Equipped—Pattern Foundry & Machine Shop Facilities—Castings to 15 tons.

Weatherly Foundry & Mfg. Co., Weatherly, Pa.

WELDED or RIVETED

STEEL PLATE FABRICATION

- Gas Seal Hoods for Blast Furnaces
- Furnace Roof Rings
- Cinder Cooling Cars
- Billet Cars
- Ingot Cars
- Ladle Cars
- Hopper Cars
- Gondola Cars
- Heavy Truck Bodies
- Boiler Casings
- Boiler Breechings
- Flues and Ducts
- Condenser Shells
- Condenser Piping
- Heavy Turbine Housings
- Hoppers and Bunkers
- Tanks and Vats
- Pressure Vessels
- Wind Tunnels
- Crane Bridge Girders
- Trolley Frames and Trucks
- Rigid Frames
- Roll-Over Fixtures
- Engine Frames and Bases
- Crawler Frames
- Press Platens and Beds
- Press Columns
- Heavy Machinery Parts and Assemblies
- Design Conversion of Castings to Weldments

MACHINING

- Complete Machining Service—Facilities for Heavy Work of Unusual Dimensions

THE R. C. MAHON COMPANY
DETROIT 34, MICHIGAN
Branch Offices in New York and Chicago

MAHON

OLSON

SCREW MACHINE PRODUCTS

Made to your specifications and tolerances. From smallest up to 2⅝" diameter in steel, brass and aluminum.

OLSON MANUFACTURING CO.
101 Prescott Street — Worcester, Mass.

THE FORMULA:

Multi-operation presses
plus
Yankee skilled workmen
over
Eighty years manufacturing know-how equals
Low cost metal stampings
And precision assemblies
To meet your needs

The GREIST MANUFACTURING CO.
646 Blake St., New Haven 15, Conn.

STA-FAST STEEL WEDGES

sharp edges give holding power like a screw.
Self-Aligning Steel Belt Fasteners.
Standard Steel Rivets used with Self-Aligning Fasteners.

STAMPINGS PUNCHINGS WASHERS
to your specifications
Catalog sent upon request
SALING MANUFACTURING COMPANY
Standard-Belt-Fastener Division
UNIONVILLE, CONNECTICUT

PRESS FORGINGS

MERRILL BROS.
5626 ARNOLD AVENUE
MASPETH, QUEENSBORO, N. Y.

DROP FORGE DIES

Forging Engineers—Die Sinkers—Manufacturers of drop forge dies and hot work tools for presses and upsetters.

COMMERCIAL DIE COMPANY
7851 Intervale Ave., Detroit 4, Mich.
Phone: WEBSTER 3-7104 Cable Code "Comdie"

DROP FORGINGS

Special Forgings of Every Description.
We solicit your prints or model for quotation.

Wilcox Forging Corporation
Mechanicsburg — Penna.

GEM INSULATING FIREBRICK

★

THE GEM CLAY FORMING CO.
SEBRING, OHIO

MEEHANITE® METAL CASTINGS

ROUGH OR MACHINED
ONE TO 60,000 POUNDS
FOR
STRENGTH — ABRASION
CORROSION OR HEAT

ROSEDALE
FOUNDRY & MACHINE CO.
1735 PREBLE AVE., PITTSBURGH 33, PA.

Gray Iron and Semi Steel Castings, also alloyed with nickel, chrome, and molybdenum. Wood and Aluminum pattern work.

KING FOUNDRIES, INC.
Phone 823 — North Wales, Montg. Co., Pa.
22 Miles from Philadelphia, Pennsylvania

10 to 12 foot lengths
Any diameter up to 1¼ inch
All thread forms
All metals

H&G threaded rods

For studs, hangers, worms, translating screws, etc.

21 Barclay St.
Eastern Machine Screw Corp., New Haven, Conn.

PIPE CUT TO SKETCH

We cut and thread all sizes of steel pipe to sketch. Our up-to-date machinery has a capacity of ⅛" to 12" pipe diameter. We specialize in production runs of cut pipe in large quantities in uniform length. Please call on us for quotations.

AUSTIN MFG. CORP.
61 Austin Street Worcester, Mass.

Special Washers

We carry in stock Silicon killed steel specially suited for case-hardening. Stock dies for producing washers from .0015 to ½" thick.

Thomas Smith Company
294 Grove St., Worcester, Mass.

DROP FORGINGS

To Your Specifications
Prompt Quotations

BALDT ANCHOR CHAIN & FORGE DIVISION
P. O. Box 350—Chester, Pennsylvania

EQUIPMENT AND MATERIALS WANTED

WANTED
NEW **SURPLUS STEEL** USED
Structurals, Plate, Pipe and Tubing
Consumers Steel & Supply Co.
P. O. Box 270, RACINE, WISCONSIN

STUD WELDER

APPROXIMATELY ¼" CAPACITY, SIMILAR TO GRAHAM MANUFACTURING COMPANY MODEL 3000. INDICATE AGE, CONDITION AND PRICE.

ADDRESS BOX G-551
Care *The Iron Age*, Chestnut & 56th Sts., Phila. 39

WANTED
BRIDGE CRANES
ARNOLD HUGHES COMPANY
2765 PENOBSCOT BLDG. DETROIT, MICH.
WOodward 1-1894

WANTED
Plants with inventories up to $500,000.00. We have complete dismantling facilities and end-user markets. We protect dealers and brokers.
A. JAY HOFMANN CO. NARBERTH, PA.

WEISS STEEL CO. INC.
600 WEST JACKSON BLVD.
CHICAGO 6, ILLINOIS
Buyers of Surplus Steel Inventories
38 Years of Steel Service

WANTED
SURPLUS STEEL
WALLACK BROTHERS
7400 S. Damen Ave. Chicago 36, Illinois

EMPLOYMENT EXCHANGE

HELP WANTED

SENIOR INDUSTRIAL ENGINEER

Large eastern steel producer has an opening for a man with a minimum of three years experience in basic steel. Prefer applicant to be over thirty years of age. Splendid opportunity for advancement.

ADDRESS BOX G-554
Care *The Iron Age*, Chestnut & 56th Sts., Phila. 39

Electrical Engineers

- **Would you like** a job where your skill as a creative design man or an application engineer would be fully utilized?
- **Would you like** to work for one of the giants in the electrical field, progressive and growing fast?
- **Would you like** to live in a city abounding in all types of sports and recreational activities, and famous as a place to bring up a family?

If you are an electrical engineer with experience in either the Maintenance or Electrical Engineering departments of a primary metal producing company, it will pay you to investigate this opportunity.

For details write to Box G-557

Care The Iron Age, Chestnut & 56th Sts., Philadelphia 39, Pa.

REPRESENTATIVES WANTED

GROWING COMPANY located in eastern Pennsylvania wants active representation in Western Pennsylvania and Eastern Ohio. Salesman should now be selling to Structural Steel Fabricators in above area. Our line can be carried along with non-competitive items. Must be able to read structural and architectural prints. Commission basis. Address Box G-569, Care *The Iron Age*, Chestnut & 56th Sts., Philadelphia 39.

Do you have . . .
A JOB FOR THE RIGHT MAN?
Are you . . .
THE RIGHT MAN FOR THE JOB?
Employers and men qualified for positions in the metalworking industry get together in the
Employment Exchange of
THE IRON AGE

We need an experienced electric melting furnace melter-supervisor. Salary open.
Contact Ivan Kerzner
New Jersey Metals Company
712 Rockefeller St., Elizabeth 2, N. J.
ELIZABETH 4-6336

Ceramic Engineer to head complete ceramic laboratory. To supervise and run development tests. Preferably refractory specialties and fire brick experience. Some traveling for sales department will be necessary.

ADDRESS BOX G-561
Care *The Iron Age*, Chestnut & 56th Sts., Phila. 39

METALWORKING BRIEFS

GM-DuPont Restrain Trade, Court Says

The U. S. Supreme Court says General Motors and DuPont have acted illegally to restrain trade. And the Court has sent back to the Federal District court in Chicago—for further development and for specific recommendations — the government's eight-year-old case against GM and DuPont.

Justice Brennan, speaking for a four-man Supreme Court majority, declared the government is correct in charging that DuPont bought heavily in GM stock in 1917 with the goal of finding a sure outlet for DuPont paints, chemicals and other products.

"DuPont purposely employed its stock to pry open the GM market to entrench itself as the primary supplier of GM requirements for automotive finishes and fabrics," the Court stated.

Push Sales, Appliance Makers Told

The appliance industry now has enough capacity to outproduce current demand. Tom Campbell, editor-in-chief of THE IRON AGE, told members of the Institute of Appliance Manufacturers in a recent address. To stimulate business he argued for: a better sales pitch tuned to buyer motivation, harder selling, better prospect lists, a pooling of research and market study, a "real" trade-in plan and a better job of studying the homemaker.

Greek Steelworks Under Study

Representatives of German steel companies are in Greece, investigating the possibility of setting up a steelworks there. Interest in the subject has been heightened by plans of the Niarchos shipping concern to build a shipyard at Scaramanga in Attica.

British Increase Tinplate Output

An increase of 20 pct in British production of tinplate is expected this year over 1956 totals. With mills setting new output highs, production will probably be over 1,225,000 net tons in 1957. In 1958 it may rise to about 1,400,000.

April Sales and Backlogs Drop

Dept. of Commerce reports manufacturers' sales and unfilled orders declined in April. New orders and inventories increased. Manufacturers sold $28.5 billion (seasonally adjusted) worth of goods during the month. This is a decline of $300 million from the previous month. All the decline came in durable goods, principally transportation equipment.

ADVERTISERS

An asterisk beside the name of advertiser indicates that a booklet, or other information, is offered in the advertisement. Write to the manufacturer for your copies today.

A

Accurate Steel Rule Die Manufacturers 10
Acme Equipment Co., Inc. 172
Acme-Newport Steel Co. 109
Air Reduction Sales Co. Between Pages 72 & 73
Ajax Steel & Forge Co. 170
*Allegheny Ludlum Steel Corp. 143
Allis-Chalmers Mfg. Co. 48
Aluminium Limited Sales, Inc. 40
American Air Compressor Corp. 170
American Chain Div., American Chain & Cable Co. 44
American Crucible Products Co., The 144
*American Gas Furnace Co. 117
American Optical Co. 178
American Steel Foundries, King Machine Tool Div. Back Cover
American Steel & Wire Div., United States Steel Corp. 163
American Zinc, Lead & Smelting Co. 96
Anderson, Matthew J. 171
*Apex Tool & Cutter Co. 177
Appalachian Steel Corp. 171
*Armco Steel Corp. 6
Armel, James P. 170
*Armstrong Bros. Tool Co. 129
Atlas Mineral Products Co., The 173
Austin Manufacturing Corp. 175

B

Baldt Anchor, Chain & Forge Co. 175
Baldwin-Lima-Hamilton Corp., Loewy-Hydropress Div. 39
Basic, Incorporated Inside Front Cover
Bay State, Abrasive Products Co. 91
Belyea Co., Inc. 169
Benkart Steel & Supply Co. 170
Bennett Machinery Co. 169
Bertsch & Company 167
*Bethlehem Steel Co. 1
Bliss, E. W., Co., Rolling Mill Div. 45
Boynton, A. J., & Co. 165
Brill Equipment Co. 170
Bristol Brass Corp., The 157
Brownell, Hazard, Machine Tools, Inc. 170
Browning, Victor R., & Co. Inc. 167
*Bunting Brass & Bronze Co. 118

C

*Carborundum Co., Refractories Div. 123
Carco Industries, Inc. 173
Cattie, Joseph P., & Bros. 167
Chambersburg Engineering Co. 177
Chemstone Corporation 90
Cincinnati Cleaning & Finishing Machinery Company 11
Cincinnati Milling Machine Co., The, Cincinnati Milling Products Div. 31
Cincinnati Ventilating Co., The 145
*Climax Molybdenum Co. 127
Colorado Fuel & Iron Corp. The, Wickwire Spencer Steel Div. 42 & 43
Columbia-Geneva Steel Div., United States Steel Corp. 163
Columbus McKinnon Chain Corp. 145
Commercial Die Co. 174
*Cone Automatic Machine Co., Inc. 82
Consolidated Railway Equipment Co. 173
Consumers Steel & Supply Company 175
Copper & Brass Research Association 38
*Copperweld Steel Co. 120
Cowles Tool Co. 131
Crawford, F. H., & Co., Inc. 170
Cross Company, The 14 & 15
Crucible Steel Casting Co. 167
Crucible Steel Co. of America 37
Curry, Albert, & Co., Inc. 170
Cuyahoga Wrecking Co., The 172

D

Davis Keyseater Co. 165
*DoAll Co., The 73
Donahue Steel Products Co. 170
Dony, D. E., Machinery Co. 169
Dravo Corporation 113
*Dreis & Krump Mfg. Co. 13
*Dykem Company, The 167

E

Eastern Machine Screw Corp., The 174
Eastern Machinery Co., The 172
*Elastic Stop Nut Corp. of America 41
Electric Controller & Mfg. Co., The, Div. of Square D Co. 80
Enthone, Incorporated 130
Ex-Cell-O Corporation 64
Exide Industrial Division, The, Electric Storage Battery Co. 140

F

Falk Machinery Co. 169
Ferry Cap & Set Screw Co., The 165
*Foote Mineral Co. 133
*Fostoria Pressed Steel Corp., The 36
Foster, L. B., Company 172
Frank, M. K. 173

G

Galland-Henning Mfg. Co. 128
Gem Clay Forming Co., The 174
Globe American Corp. 172
Goodman Electric Machinery Co. 171
*Goodyear Tire & Rubber Co., Industrial Products Div. 8
Goss & DeLeeuw Machine Co. 167
Great Lakes Steel Corp. 75
Great Lakes Wholesale Supply Co. 171
Greist Manufacturing Co., The 174
Griffin Manufacturing Co. 167
Gulf Oil Corp. 18 & 19
Gulf Refining Co. 18 & 19

H

*Hansen Manufacturing Co. 94
*Hanson-Van Winkle-Munning Co. Between Pages 16 & 17
Hardinge Mfg. Co. 173
*Harrington & King Perforating Co., The 138
Harris Foundry & Machine Co. 57
Harrisburg Tool & Mfg. Co. 173
Harvey Aluminum Sales, Inc. 33
*Haynes Stellite Company, Div. of Union Carbide Corp. 47
Henry, A. T., & Company, Inc. 169
Herr Equipment Corporation, The 112
Hofmann, A. Jay, Co. 175
Holo-Krome Screw Corporation, The 17
Hooker Electrochemical Co. Between Pages 138 & 139
Huebel Mfg. Co., Inc. 173
Hughes, Arnold, Co. 170 & 175
Hyde Park Foundry & Machine Co. 116
Hyman, Joseph, & Sons 171

I

Illinite Division of Illinois Tool Works 59
Industrial Brownhoist Corp. 12
Industrial Products Suppliers 165
*Inland Steel Co. 135
Iron & Steel Products, Inc. 168

J

*James, D. O., Gear Mfg. Co. 142
*Jones & Laughlin Steel Corp. 60, 85

IN THIS ISSUE

K

Kasle Steel Corp. 171
*Kearney & Trecker Corp. ..... 88 & 89
Keystone Steel & Wire Co. ..... Between Pages 138 & 139
King Foundries, Inc. 174
Kulka, J. N., Co. 170

L

Lang Machinery Co., Inc. 171
*La Salle Steel Co. 24
*Lincoln Electric Co. 46
*Link-Belt Co. 29
*Lodge & Shipley Co., The 30
*Loewy-Hydropress Division, Baldwin-Lima-Hamilton Corp. 39
*Logan Co. 16
Luria Bros. & Co., Inc. 151

M

MacCabe, T. B., Co. ..... 169 & 171
Mahon, R. C., Co., The 174
Manning, Maxwell & Moore, Inc. 119
Marshall Railway Equip. Corp. 173
Master Electric Co., The ..... Inside Back Cover
*May-Fran Engineering, Inc. ..... 136 & 137
Merrill Brothers 174
*Metal Carbides Corp. 142
Metallurgical Products Department of General Electric Company ..... 26 & 27
Miles Machinery Co. 169
Mississippi Valley Equipment Co. 173
Moorhead Electrical Machinery Co. 170
Morton Machinery, Inc. 172
*Mundt, Chas., & Sons 165

N

National Machinery Exchange 170
National-Standard Co. 35
National Steel Corp. 75
National Tube Div., United States Steel Corp. 163
New England Pressed Steel Co. 173
New Jersey Metals Co. 175
New Jersey Zinc Co., The 76
*Newage International, Inc. 126
*Niagara Blower Co. 110
Notat Tire Company 144

O

*Oakite Products, Inc. 125
*Ohio Electric Mfg. Co., The 153
Ohio Steel Foundry Co. 86
Oliver Corp., The A. B. Farquhar Division 92
Olson Manufacturing Co. 174
Ornitz Equipment Corp. 173
Osborn Mfg. Co., The Brush Division 5
Ottemiller, Wm. H., Co. 165

P

Peasley Products, Inc. 173
*Philadelphia Gear Works, Inc. 23
*Pittsburgh Engineering & Machine Co. 4
Poole Foundry & Machine Co. 165
Portage Machine Co., The 34
Power Press Specialists 171
Purdy Company, The 173

R

Rail & Industrial Equip. Co., Inc. 172
Reading Crane & Hoist Corp. 126
*Republic Steel Corp. ..... 114 & 115
Reynolds Metals Co. 21
Roebling's, John A., Sons Corp. ..... Between Pages 16 & 17
Rosedale Foundry & Machine Co. 174
*Rotor Tool Company, The 20
Ryerson, Jos. T., & Son, Inc. 146

S

Saling Manufacturing Company .. 174
Sauereisen Cements Co. 129
Service Steel, Div. Van Pelt Corp. 165
Seymour Manufacturing Co., The 155
*Shepard Niles Crane & Hoist Corp. 139
Silent Hoist & Crane Co. 131
Smith, Thomas, Co. 175
*Somers Brass Co., Inc. 9
*Spencer Turbine Co., The 132
Square D Company, EC & M Division 80
Stamco, Inc. 22
Standard Tube Sales Corp. 173
Stanhope, R. C., Inc. 171
Steel & Tube Div., Timken Roller Bearing Co. 50
Stevens, Frederic B., Inc. 111
Strom Machinery Corp. 172
Superior Steel Corp. ..... Between Pages 72 & 73

T

Tahlen Hammer Co. 124
Tennessee Coal & Iron Div., United States Steel Corp. 163
Texas Company, The 78
Timken Roller Bearing Co., The, Steel & Tube Division 50
Torrington Co. 62
Tractor & Equipment Co. 172

U

Union Carbide Corp., Haynes Stellite Div. 47
Union Switch & Signal Div. of Westinghouse Air Brake Co. 32
*United States Steel Corp. 163
United States Steel Export Co. 163
United States Steel Supply Div., United States Steel Corp. 163
Universal Machinery & Equipment Co. 171

V

Vanadium Corp. of America 95
*Vickers Incorporated, Division of Sperry Rand Corporation 25
Virginia Gear & Machine Corp. .. 23

W

Wallack Bros. 175
Ward Steel Co. 126
Wassell Organization, Inc. 142
Weatherly Foundry & Mfg. Co. .. 173
Weiss Steel Co., Inc. 175
*Wheelock, Lovejoy & Co., Inc. ... 141
Wheland Co., The 93
Wickwire Spencer Steel Div., The Colorado Fuel & Iron Corp. ..... 42 & 43
Wiaalesworth Industrial Corp. 172
Wilcox Forging Corp. 174

Y

Youngstown Sheet & Tube Co., The 28

CLASSIFIED SECTION

Clearing House 168-173
Contract Manufacturing ..... 173 & 175
Employment Exchange 175
Equipment & Materials Wanted .. 175

Weight 63,600 lbs.

PRECISION
GRAY IRON • ALLOY IRON • DUCTILE IRON
CASTINGS
CEMENT BONDED SAND METHOD
CHAMBERSBURG ENGINEERING COMPANY

Phone Casting Sales Dept.

302 Derbyshire Street — Chambersburg, Penna.

PRODUCTION TOOLS BY APEX

MULTIPLE TOOL HOLDER For Boring Mill

Four cuts in one operation. Each tool set ¼" ahead for turning, thus removing excessive stock in minimum time. Tools DROP FORGED of H.S. or cobalt steel. Also carbide tipped when required.

Send for catalog. Service engineers will gladly co-operate with you on tooling.

THE APEX TOOL & CUTTER CO., SHELTON 12, CONN.

Please and

PROTECT EVERY WORKER*

with Comfortable, Engineered AO F5100 Safety Glasses!

(*Who needs impact protection)

Here are our popular metal frame Ultrascopic Safety Glasses with many new features. In comfort, safety and styling (which makes the device willingly worn) there is no better eye protection. Specify the AO F5100 — reduce accident costs!

NEW FEATURES INCLUDE:

- Complete range of eye sizes (42, 44, 46, 48)
- Complete range of bridge sizes (18, 20, 22, 24, 26)
- 2 temple styles in all lengths. Comfort cables for both side shield and non side shield models, spatula temples for latter
- Screen, clear acetate and green acetate side shields
- Clear and Calobar 6 curve lenses

To be safe keep Safety Glasses clean!

AO 750 LENS CLEANING CABINET

Stationed at strategic plant locations, these cabinets give workers everything needed to keep safety glasses at peak visual efficiency. Cabinet is a small compact unit, providing all necessary cleansing and anti-fog materials. Made of selected hardwood, safety green lacquered finish. 12" long, 9" high, 6" deep. Contains 6 oz. bottle 750B and sprayer.

750S: Bottle can be used with AO #750F Fluid or AO 350AF Super-Clear anti-fog-cleaner fluid.

750T Cleansing Tissue: 2 boxes each with 120 sheets supplied. 2 openings in front of cabinet permit easy detachment of single sheets (no waste).

Tissue Disposal: 2 openings at top of cabinet provide for disposal, keep area neat and tidy.

111 Anti-Fog: 1 oz. jar supplied with cabinet. AO 350AF Super-Clear available on special order.

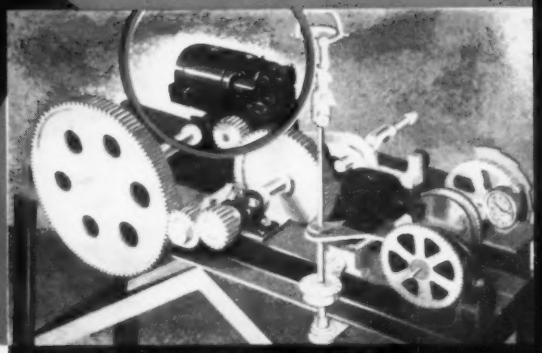
American Optical Sweatbands increase worker comfort and efficiency, keep sweat out of eyes — prevent accidents — for pennies! Check your needs.

Always Insist on AO Trademarked Safety Products. Your nearest American Optical Safety Products Representative can supply you.

SOUTHBRIDGE, MASSACHUSETTS
BRANCHES IN PRINCIPAL CITIES

American Optical
COMPANY
SAFETY PRODUCTS DIVISION

Nothing Cuckoo about this clock!



The "works" of a tower clock. ½ H.P., 115/230 volt, 60 cycle, 1 phase Master Right Angle Gearmotor supplies main drive with a synchronous output speed of 30 R.P.M.

You may not need clock drives, but time (production time) is a problem everywhere—and that calls for the most dependable, most efficient use of electric drives—like here! This clock, with 300 lbs. of hands and four 24-foot dials is powered by a Master Gearmotor driving a precision gear train. With that accurate Master drive, here's a one-jewel clock!

Are you sure you've got the right answer to your drive requirements? Master components can be integrated in any combination to give you the right horsepower, right shaft speed, right mounting features, in a single, efficient, compact unit. Now's the time to let us prove it.

MASTER ELECTRIC MOTORS

ANOTHER DRIVE REQUIREMENT MEETS ITS

MASTER

Motor Ratings	⅛ to 400 H.P. All phases, voltages, frequencies.
Motor Types	Squirrel cage, slip ring, synchronous, repulsion-start induction, capacitor, direct current.
Construction	Open, enclosed, splash-proof, fan-cooled, explosion-proof, special purpose.
Speeds	Single-speed, multi-speed, and variable speed.
Installation	Horizontal and vertical, with or without flanges and other features.
Power Drive Features	Electric brakes (2 types)—5 types of gear reduction up to 432 to 1 ratio. Mechanical and electronic variable speed units—fluid drives—every type of mounting.

THE MASTER ELECTRIC COMPANY

Dayton 1, Ohio

SPEED UP PRODUCTION . . .

SLOW DOWN Operator Fatigue

with the NEW

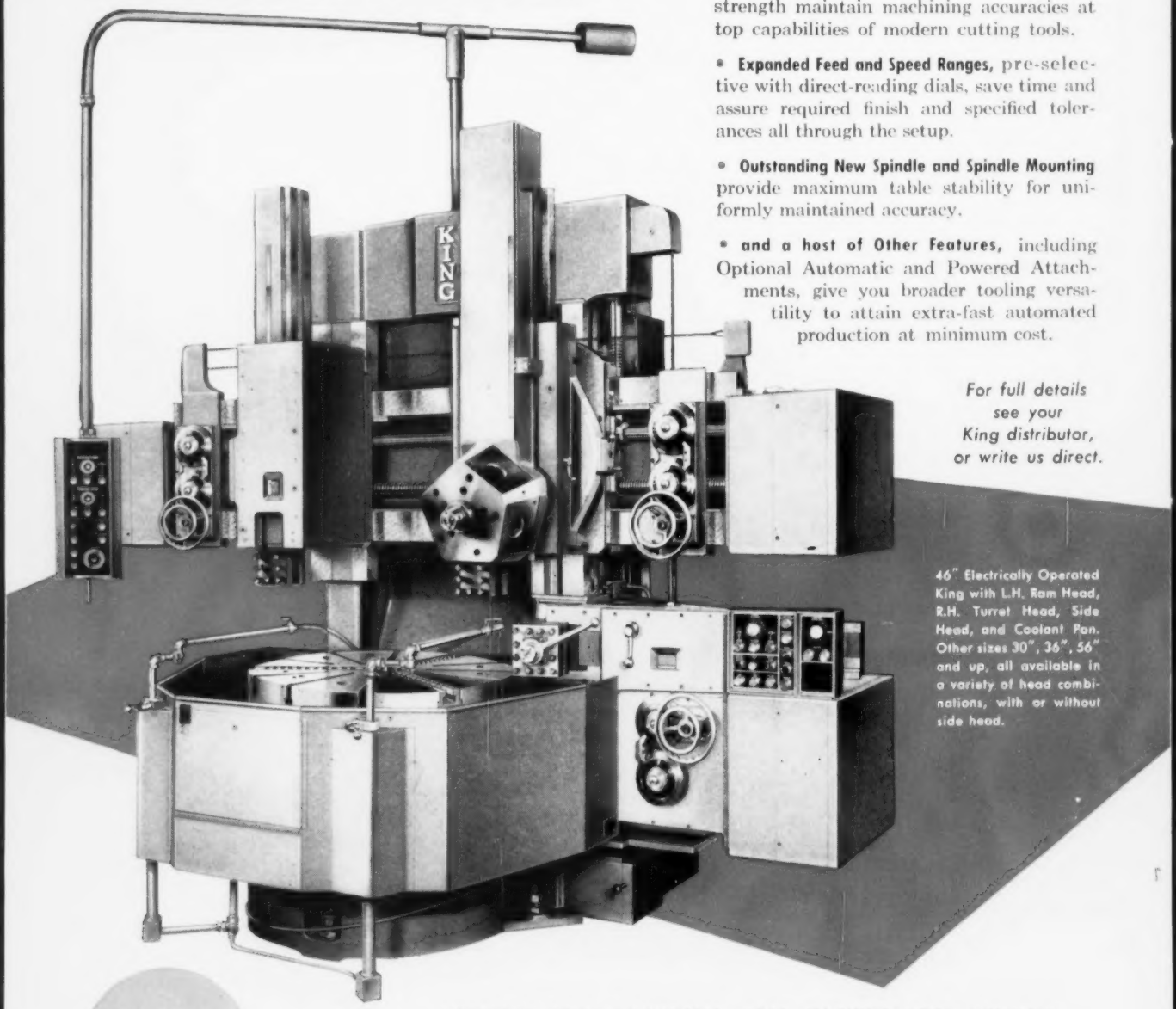
Full Electrically Operated

KING

Shop after shop continues to show that the all-new King® Vertical Boring and Turning Machine **saves time . . . and saves the operator** . . . all the way!

- **Full Electrical Operation** speeds set-up time . . . cuts operating time to a bare minimum.
- **Greater Horsepower,** ruggedness, reserve strength maintain machining accuracies at top capabilities of modern cutting tools.
- **Expanded Feed and Speed Ranges,** pre-selective with direct-reading dials, save time and assure required finish and specified tolerances all through the setup.
- **Outstanding New Spindle and Spindle Mounting** provide maximum table stability for uniformly maintained accuracy.
- **and a host of Other Features,** including Optional Automatic and Powered Attachments, give you broader tooling versatility to attain extra-fast automated production at minimum cost.

For full details see your King distributor, or write us direct.



46" Electrically Operated King with L.H. Ram Head, R.H. Turret Head, Side Head, and Coolant Pan. Other sizes 30", 36", 56" and up, all available in a variety of head combinations, with or without side head.

AMERICAN STEEL FOUNDRIES, KING MACHINE TOOL DIVISION
1150 TENNESSEE AVENUE, CINCINNATI 29, OHIO

KING Vertical Boring and Turning Machines